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# THE OPHTHALMIC RECORD

## A Monthly Review of the Progress of Ophthalmology

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# A CLINICAL AND PATHOLOGICAL STUDY OF TWO CASES OF MILIARY TUBERCLES OF THE CHOROID.†

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Jaeger,[1] in 1855, first described ophthalmoscopically a choroidal tubercle,* and his observations were confirmed by von Graefe and Leber.[2] The earlier ophthalmologists, however, insisted that ophthalmoscopic changes in tuberculous meningitis were rare, and it is with no little interest and surprise that one reads the comparatively recent observations of Carpenter and Stephenson,[3] who claimed to have found choroidal tubercles in 50 per cent. of their cases. Following close upon their communication we find the work of Marple[4] in the Babies' Hospital, N. Y., who concludes that in tuberculous meningitis choroidal miliary tubercles are the rule. (100 per cent. in 13 cases), a statement made at the Ophthalmological Congress in Oxford in 1912. And yet in contradiction to Marple we find Heinzel[5] with negative findings in 41 cases of tuberculous meningitis which he examined. We have then, in these latter days, in opposition to the rather conservative statements of the earlier ophthalmologists, the figures of Carpenter and Stephenson and Marple, who place the percentage at from 50 per cent. to 100 per cent. These more recent figures are based upon frequent examinations, which indicate how often the changes were overlooked in old times when one routine examination was made and as often nothing found. The eye-grounds were not subjected to further examination, and the case was recorded as negative so far as tubercles in the choroid were concerned. It should be remembered that the tubercles are usually seen among the terminal events in the history of the case, and ophthalmoscopic examinations should be frequently made. Marple mentions a case in which an ophthalmoscopic examination made at 6 P. M. disclosed fundi entirely free of tubercles, and at 10 P. M. a tubercle was found, this having developed in the interval. The introduction of the electric ophthalmoscope makes examinations of this character so much easier. Not only is the fundus perfectly seen, but the great difficulty in conducting successfully an examination of this character in the case of a baby is reduced to almost a minimum by having a brilliant, steady, and uniform illumination. It is certainly easy to overlook changes of this nature when using an ordinary non-electric

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* Whether miliary, has since been questioned.

* Jaeger in 1855 examined the choroidal nodules in his cases anatomically, and pronounced them tubercles, but it has since been doubted whether they were miliary tubercles.

†Read before the American Ophthalmological Society, Washington, D. C., June, 1916.

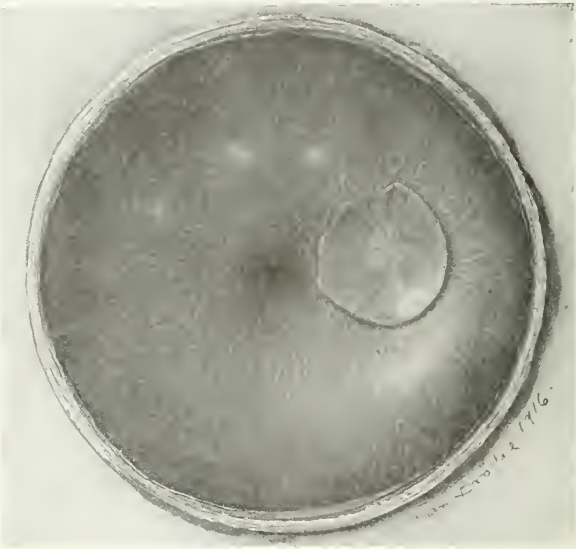

Fig. 1.—Case I. Eye-ground of right eye. × 5.

ophthalmoscope, an examination which often presents great difficulties.

In the first case, Dorothy Ziemen, the tubercles, three in number, were found in the right eye above the disc, and at an angle of 120 degrees from the vertical meridian, while in the left eye there was a tubercle above, one below, and one to the nasal side of the disc. In the second case, Dorothy Chapman, there was a tubercle in the right eye above the disc and one far out to the temporal side. What was seen in the left eye could not be regarded positively as a tubercle. It might be well to state here that it is important to make the examination in both eyes, for the tubercles often occur in one eye and not in the other. It is not necessary to describe them ophthalmoscopically, as their appearance is sufficiently familiar to us all.

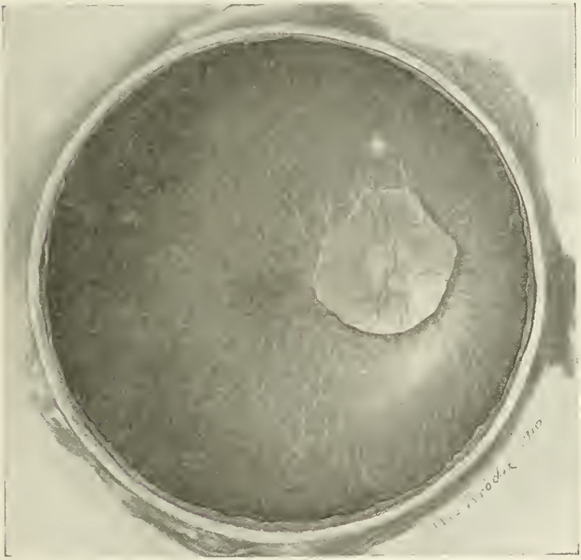

Fig. 2.—Case II. Eye-ground of right eye. × 5.

What is particularly striking in connection with this subject is, first, the necessity of using the electric ophthalmoscope, and, second, the importance of frequent examinations—at least twice daily. A cycloplegic should always be used. These conclusions may be equally well applied to the examinations of the eye-grounds in cases of Bright's disease. Statistics based upon infrequent examinations may be regarded as more or less unreliable and as giving an inaccurate idea of the frequency of ophthalmoscopic changes in nephritis. The same rule might be adopted in not only Bright's disease, but in the various blood diseases, as, for instance, pernicious anemia. In both of these diseases we are in the habit of making a routine ophthalmoscopic examination when first seen. We are less apt to repeat such examination unless subjective symptoms, such as dimness of sight, should develop and call our attention to the possibility of ophthalmoscopic changes having suddenly appeared since the first examination.

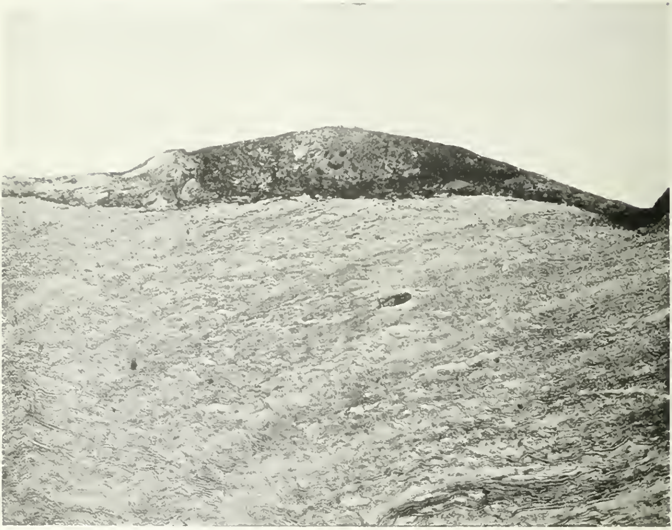

Fig. 3.—Case I. Left eye, × 45. Below is the sclera and above the vascular and pigmented choroid. The tubercle is limited to the latter. It shows a typical giant-cell, epithelioid and small round cells, with the characteristic grouping.

Case I.—Dorothy Ziemen, aged two years. The father died of tuberculosis, with hemorrhage, when patient was sixteen months old. Mother is living and in excellent health. She has never had any miscarriages. The child at birth weighed nine pounds and was fed at the breast until she was eighteen months old, when she began to eat at the table with the rest of the family. She has never been sick in bed, but had pertussis. She became sleepy and cross, and not long afterward began to vomit, and did this whenever she was moved. She had no appetite and was constipated. The temperature was 99.4° F., pulse 100, and respiration 24. She lay in bed and rarely moved unless disturbed, with lids half shut and mouth wide open, breathing slowly, with periods of apnea. She shunned the light and was very irritable. There was no general glandular enlargement. The neck was somewhat rigid. A few days later the spinal fluid showed a film on standing, and the eye-grounds began to show blurring of the edge of the disc;

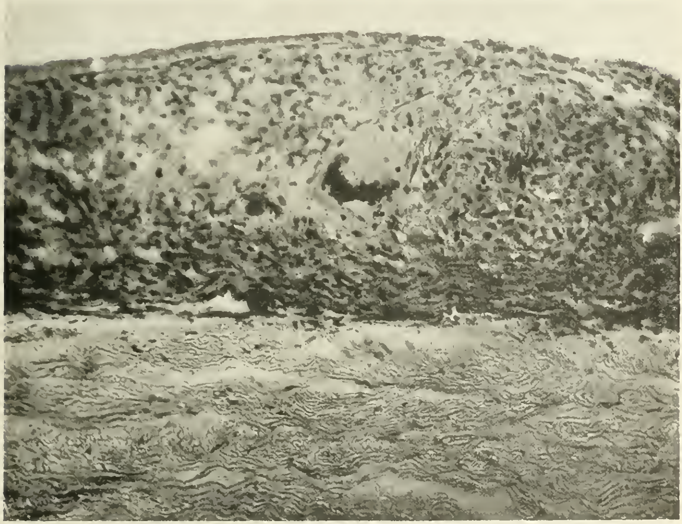

Fig. 4.—Same as Fig. 3, a higher power, × 152.

four days later tubercles were discovered in the eye-grounds.

Case II.—Dorothy Chapman, aged four months. Born at full term, and had been free of illness until the present one. The onset was characterized by fever and cough. She cried a great deal and slept very little. The temperature was 102° F., and the respiration 84. She lay on the table with distant expression, hands tightly clenched, and legs flexed. The reflexes were slightly exaggerated, and there were numerous tuberculides all over the body. The tubercles were found in the choroid at the first examination.

## Pathological Examination.

Autopsy of these two cases revealed the following:

Case I.—General miliary tuberculosis with acute tuberculous meningitis. The portal of entry of the organism was most probably through the alimentary canal, where ulcers were found. The tubercles were widely scattered through the body, being present in the mesenteric and pulmonary lymph-glands, lungs, pleura, endocardium, spleen and its capsule, liver and its capsule, and last, and most important, in the choroid membrane of both eyes.

On opening the right eye (Fig. 1) there was nothing abnormal noticed until the retina was removed, then one could see a number of just visible, slightly larger than pin-point, bluish-white, translucent nodules projecting from the black surface of the choroid. Taking the macula lutea as the posterior pole, two of these miliary tubercles were located in the upper temporal quadrant and a third in the upper nasal quadrant. Several more were seen with a magnifying glass, but their exact position was not noted.

In the left eye, again after the removal of the retina, there were seen in the upper nasal quadrant two and in the lower temporal quadrant one miliary tubercle rising from the choroid. They were very similar in size, shape, and appearance to those of the right eye.

Of the left eye a careful microscopic examination was made (Figs. 3 and 4). A section taken perpendicular to the surface, through the choroid and sclera, to include one of the small bluish-white nodules, presented the following picture: To one side of the section was seen the thick sclera, composed of rather coarse strands of wavy fibrous tissue with scattered, deeply staining, spindle-shaped nuclei. Only one or two bloodvessels were present. Joining the sclera was the choroid, a membrane of only about one-tenth the thickness of the former, and composed of loose cellular connective tissue with large pale nuclei and many blood-vessels. The fine brown pigment granules were found principally in the cells along the inner margin and in a single row of cuboidal cells—the retained layer of pigment-cells of the retina. Limited to the choroid was a single miliary tubercle, showing the characteristic structure and constituent elements. In its center was a typical giant-cell, surrounded by epithelioid cells with a peripheral zone of lymphoid cells. There was no caseation.

Sections stained for tubercle bacilli showed the same to be present in moderate number within the tubercle.

Case II.—General miliary tuberculosis without meningitis. The portal of entry was not definitely determined, but was thought to be through the lungs. The tubercles were found widely disseminated through the body, even involving the skin. They were present in the choroid of the right eye, but could not be demonstrated in the left.

The retina of the right eye (Fig. 2) appeared uninvolved, and no tubercles could be seen through the same, but after removing the retina two small gray nodules were present in the choroid. In shape and appearance they were similar to those of the first case, except that they stood out in stronger relief from the somewhat darker choroid of the negro infant, but in size the one was almost 1 mm. in diameter, the other one just visible. The first was located in the upper nasal quadrant, slightly above the optic disc, and the second in the periphery of the upper temporal quadrant.

The literature of miliary tubercles of the choroid shows that the first case described both grossly and microscopically was by Manz[6] in 1858. Five years later he[7] added two more cases. His findings were soon confirmed by Busch,[8] who contributed the fourth case. The following year Cohnheim[9] published seven cases that he had observed during the previous winter, thus taking this lesion out of the realm of pathological curiosities. Nevertheless, it can hardly be said that the literature is overrun with pathologic data on this subject. Isolated cases were reported until Litten,[10] in 1877, tells us that he found choroidal tubercles postmortem in 39 out of 52 cases of acute miliary tuberculosis. Since then the purely pathological literature has not been so abundant as might be expected.

Most of the cases of miliary tubercles of the choroid have occurred in cases of general miliary tuberculosis with or without tuberculous meningitis. However, it is well known that they may be found, but not so frequently, in practically any type of tuberculosis with a primary lesion almost anywhere in the body.

### CONCLUSION.

The two cases of miliary tubercles of the choroid reported above are of interest because:

1. In the one case we are dealing with general miliary tuberculosis with acute tuberculous meningitis, and in the other with general miliary tuberculosis without meningitis.

2. The miliary choroidal tubercles were demonstrated during life, and verified at autopsy both grossly and microscopically, including the demonstration of the tubercle bacillus in the lesion.

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### *DISCUSSION.*

DR. S. D. RISLEY, Philadelphia, said he did not know of anything in his medical experience which had caused him more surprise than the frequency with which he had found tuberculosis as an etiologic factor in uveal disease, after his attention had once been directed to the subject. He was convinced that for many years he had been overlooking the actual etiology of many cases of choroiditis and iritis, ascribing them to other and various causes, which he now believes had in all probability been tubercular in character. Cases of progressing disseminated choroiditis he had repeatedly found responding positively to tubercular tests, and their progress arrested by gradually ascending doses of old tuberculin by hypodermic injection after other methods of treatment had entirely failed. As illustrating this claim, he had seen a sudden onset of edema occupying a large area in the nasal ophthalmoscopic field in a patient who had long been under treatment for weak eyes, with irritable eyegrounds and a low astigmatism with hyperphoria. In the center of the edematous area could be seen a dense, gray-white spot. The von Pirquet test proved very positive, increasing the irritability of the eye and causing a slight rise in temperature. Ascending doses of old tuberculin were resorted to, with the result that the edema rapidly disappeared and the vision rose from one-fifth to normal, but as a final result there was a large patch left in the choroid similar to those with which we were familiar in the frequent cases of disseminated choroiditis. He quite agreed with Dr. Randolph as to the necessity for more frequent study of eye-ground lesions, especially in the presence of kidney affections. In his experience it had been rare not to find changes in the fundus in cases of advanced nephritis. He was not ready, however, to believe that the eye-ground lesions were necessarily due to the kidney disease, but that both nephritis and the retinitis were due to a common toxemia, which was to say that the retinitis was but another local expression of a general or systemic disorder which involved also the kidney; as, for example, in glycosuria or cardiovascular disease, related as they are to faulty metabolism.

Dr. R. L. Randolph, Baltimore, Md.: I would like to say that these miliary tuberculoses of the choroid differ entirely from anything we see in so-called disseminate choroiditis. The tubercle, for instance, shown in the drawing is distinctly round and elevated above the plane of the retina, and there is no suggestion of any pigment about it, a thing which always occurs in choroiditis disseminata.

I have great faith in the tuberculin and Wassermann tests, but we so frequently find contradictions in their exhibition that I am not disposed to place unbounded confidence in them. I am not so sure that cases should be regarded as cases of tuberculosis simply because they get well promptly under the treatment usually adopted for tuberculosis.

# A NEW METHOD OF TREATMENT FOR RETINAL SEPARATION.

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Although numerous procedures, operative and otherwise, have been brought forward for the treatment of separation of the retina, none of them has proved really successful except in the rarest cases. Recently trephining the sclera has been advocated by Parker and others. This procedure was suggested by me in 1910, apparently for the first time, but later after giving it a fairly thorough trial I concluded that the results obtained were no better than after simple scleral puncture. Not infrequently it is possible to replace the retina temporarily, but almost invariably after the patient resumes his usual habits it again becomes separated. The procedure that I now desire to bring forward is designed to keep the retina *in situ* after it has once been replaced and thus to prevent this unfortunate outcome.

The method is briefly as follows: The retina is first replaced by means of scleral puncture or other measures and the patient then kept in bed with both eyes bandaged for about a week. A large number of minute punctures through the sclera and retina are now made by electrolysis. At the site of each puncture the retina becomes intimately fused with the chorioid and sclera as a result of the slight inflammatory reaction set up. The procedure may be carried out under cocaine anesthesia and is not actually painful, although very unpleasant to the patient. I have employed a small steel half-curved eye needle, the current being obtained from a series of six dry batteries of 1½ volts each. The positive electrode in the form of a wet sponge is applied to the cheek. The conjunctiva is not dissected back, but the punctures are made directly through it. The slight conjunctival reaction resulting is of no importance. The needle point is pressed firmly against the globe until it penetrates the wall, when it is pulled back slightly so that the point protrudes only a millimeter or two into the vitreous, and then allowed to remain about five seconds. It requires about one-half minute for each puncture. The patient is afterwards kept in bed for about ten days to allow time for the retina to become firmly adherent.

I have selected the equatorial region for the sites of the punctures, but further experience may show that they should be made elsewhere. Their number probably should be varied according to the extent of the separation, but in any case it would seem advisable to make a few punctures also through the normal portion of the retina as a prophylactic measure. Before employing the method on a human patient I determined its harmlessness by experiments on the normal eyes of rabbits and cats. Later I examined these eyes microscopically and found, as anticipated, that after ten days to two weeks the retina was firmly adherent around the puncture wounds. Strangely enough the puncture holes remained patent up to the episcleral tissue and contained vitreous.*

Thus far I have used the method in only one case, but in this it proved entirely successful. I have therefore thought it best to make it available to others at once, especially since upon à priori as well as upon experimental grounds it seems to be not only rational but perfectly harmless. Moreover, its exact value can be more quickly determined by the experience of many observers than of one alone.

The case in which the method was used was that of a woman aged 43 years. The separation of the retina, which was in the left eye, was very large, extending from the lower inner quadrant all around the temporal side. There was a large deeply seated group of vitreous opacities. The visual acuity in this eye was equal only to the counting of fingers at one foot with central fixation, and at eight feet with eccentric fixation. The duration of the separation was definitely determined to be at least six years by finding that the patient had been treated at this institution for extensive separation of the retina in 1910. No operation was done at that time and the patient was discharged unimproved. There was no history of injury. The visual acuity of the right eye was reduced to the perception of hand movements, the projection was faulty, and according to the patient this eye had been practically blind for 17 years. There was no separation of the retina in this eye, but the retina showed a number of angioid streaks suggesting that a separation had existed at some previous time, and there was also a posterior cortical cataract.

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*This suggests the possibility that such electrolytic punctures made just behind the limbus into the anterior chamber might allow filtration to occur in cases of glaucoma. I have not yet had opportunity to try them for this purpose, however.

On Aug. 9, 1916, I made two scleral punctures in the left eye, with a Graefe knife, one in the outer quadrant from which a large amount of serum was obtained and the other in the lower inner quadrant, from which only a small amount of fluid came. Counter pressure was made on the opposite side of the globe to force out all the fluid possible. The following day the retina was completely in place as determined with the ophthalmoscope.

The patient was kept in bed with both eyes bandaged until Aug. 17, when three electrolytic punctures at the equator were made, under cocaine anesthesia. These caused practically no reaction, and on Aug. 22 twelve more punctures were made, also at the equator. The fifteen electrolytic punctures thus made were at about equal intervals, extending from normal retina to normal retina. For four or five hours after the operation the patient says she saw flashes of light in the field corresponding to the punctures. A day or two after the operation three of the punctures were found to be sufficiently far back as to be readily visible with the ophthalmoscope. Each appeared as a white spot with a dark centre. The retina around the spot was slightly hemorrhagic but there was no hemorrhage into the vitreous.

The patient was kept in bed for 10 days and then discharged from the hospital. The visual field taken with a 1 *cm.* disc at this time was almost normal in extent, except that there was a marked indentation extending to 30° in the upper inner field. With a ½ *cm.* disc the indentation extended almost to the fixation point. There was a large absolute scotoma to the nasal side of the fixation point. The central vision had improved to 2/200 with central fixation and to 20/200 with eccentric fixation. When last seen Oct. 23, two months after the electrolytic punctures, the retina was still in place. The visual acuity and field were unchanged. The punctures appeared as bright white spots.

A remarkable feature of this case was that the retina should have gone back in place after having been separated for six years. As might have been expected, however, the retina only partially regained its function, the macula in particular having been severely injured.

Although perfect results can not be expected from this method unless the retina is completely in place before the electrolytic punctures are made, nevertheless it is possible that it may be of some benefit even in cases in which the retina is still partly separated. For by making the punctures through the attached retina it may be possible to prevent the further extension of the separation. The method, moreover, may prove of value as a prophylactic measure to be used on the uninvolved eye in cases of non-traumatic unilateral separation, particularly in cases of high myopia.

This method should not be confused with the treatment of retinal separation by galvano-puncture, so-called. The latter procedure should more properly be termed galvano-cautery puncture, since it consists in burning a hole in the sclera with a galvano-cautery to let out the sub-retinal fluid.

In regard to the best methods to be used in attempting to replace the retina in preparation for the electrolytic punctures, I have seen the best results both in my own practice and that of my colleagues follow simple scleral puncture combined with rest in bed. I think it advantageous while the sub-retinal fluid is being let out, to make counter pressure on the globe to force out the last trace of fluid possible. Formerly I incised the retina and incarcerated a small amount of vitreous in the scleral wound, but for the present method this is probably disadvantageous since it may prevent the retina from being smoothly replaced. The same objection would seem to apply to some extent also to trephining the sclera and to galvano-cautery puncture, but these procedures have the advantage of not puncturing the retina. On a number of occasions I have injected normal salt solution into the vitreous after making a scleral puncture, in the hope of forcing the retina into position, but always without success. Moreover, I have seen alarming reactions follow this procedure, and on theoretical grounds it does not seem to offer any advantages over counter pressure applied as mentioned above. It has been my experience that if the retina does not become replaced after one or two scleral punctures, further operations are useless. I have also observed that after the retina has become separated a second time it has not been possible again to replace it. Possibly this has been due to the retina having been incised at the first operation.

# BICYLINDRIC REFRACTION.

BY

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In view of the various methods suggested to solve the problem of bicylindric refraction which have occasionally, during recent years, appeared in ophthalmic literature, the writer begs again to emphasize the fact that, the dioptral formulæ established by him in 1888 are still the *simplest* extant, since they contain only the known powers of the superposed cylinders and the angle between their axes. Thus, for instance, it being desired to ascertain the powers of the principal meridians of the cylindric combination, +2D. cyl. ax. 145° ⌢ —4D. cyl. ax. 75°, the formulæ to be used apply to

**Contra-generic Meridians:**

$$R_1 = \frac{1}{2}\left(r_1 - r_0 + \sqrt{(r_1 - r_0)^2 + 4\, r_1\, r_0 \sin^2\gamma}\right) \ldots\ldots\ldots\ldots \text{VIID.}$$

in which the convex cylindric power, $r_1 = 2$D. and the concave cylindric power $r_0 = 4$D. and the angle between their axes, $\gamma = 145° - 75° = 70°$, or $\sin^2\gamma = 0.8830173$.

Hence, the *principal convex meridian*,

$$R_1 = \frac{1}{2}\left(-2 + \sqrt{4 + 4 \times 8 \times 0.8830173}\right)$$

$$\therefore\ R_1 = 1.839 \text{ D.},$$

and, since

$$R_1 - R_0 = r_1 - r_0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (55)$$

$$1.839 - R_0 = 2 - 4,$$

so that the *principal concave meridian*,

$$-R_0 = -2 - 1.839.$$

$$\therefore -R_0 = -3.839 \text{ D.}$$

Therefore, the stated cylinders, whose axes embrace an angle of 70°, are equivalent to +1.839 D. cyl. ⌢ —3.839 D. cyl., with their axes at right angles to each other. This combination has the following sphero-cylindric equivalents:

+1.839 D. sph. ⌢ —5.678 D. cyl.,
—3.839 D. sph. ⌢ +5.678 D. cyl.

The latter form, being selected and substituted by the nearest *practical* equivalent, would give —3.75 D. sph. ⌢ +5.75 D. cyl., which, however, concedes the negligible errors:

+0.089 D. sph. and —0.072 D. cyl., since the former being added and the latter subtracted give

—3.839 sph. and +5.678 cyl., the *correct* powers.

My esteemed friend, Prof. Charles Sheard, in the OPHTHALMIC RECORD of November 1916, gives the faulty theoretic equivalent, —3.64 D. sph. ○+5.28 D. cyl., and substituted it in practice by —3.5 D. sph. ○+6 D. cyl.

In the writer's opinion, if he had substituted the lens, 3.75 D. sph. ○5.75 D. cyl., he would in all probability have avoided "the little metamorphopsia" which he says "could not apparently be improved upon."

Having once determined the sphero-cylindric equivalent by means of the formulæ, VII and 55, it is merely necessary in practice to insert the calculated lenses in the trial frame, in order to determine the exact position of the cylinder which affords the best visual acuity. However, skilful practice in skiametry and a little patience will rarely ever lead to the conviction that cylinders at acute or obtuse angles are either theoretically or practically necessary. Moreover, those who are not sufficiently familiar with the table of sines may readily avoid time-consuming calculations by merely cementing together the flat surfaces of the cylinders, precaution being taken to accurately set their axes to the required deviation. This combination may then be neutralized the same as any other compound lens. The preceding formulæ, as well as those for **Congeneric Meridians**:

$$R_1 = \frac{1}{2}\overline{\left(r_1 + r_2 + \sqrt{(r + r_2)^2 - 4\, r_1\, r_2 \sin^2\gamma}\right)} \ldots\ldots\ldots \text{II D.}$$

and $R_1 + R_2 = r_1 + r_2$, ................................ (54).
in which $r_1$ must always be chosen for the cylinder of greater dioptral power, were merely advanced to effectually establish the *sixteen laws* first disclosed by the writer, and to mathematically prove that superposed cylinders, crossed at any angle, are equivalent to ordinary sphero-cylindric combinations. With this well established knowledge the ophthalmic practitioner need not be perplexed by less concise mathematical dissertations upon the subject. Every aspect of the refraction by bicylindric lenses will be found fully discussed in the writer's treatise on Ophthalmic Lenses, published by the Keystone Press, Philadelphia, 1890.

Incidentally, it may also be mentioned that several authors have quite recently given the wrong formula for the horizontal and vertical refractive powers of a cylinder whose axis is placed at an angle, $\beta$, with the horizon. The correct formula is:

$D_H \sin^2 \beta + D_V \cos^2 \beta = D$, the maximum dioptral power of the cylinder at right-angles to its axis. In this equation, $D_H$ and $D_V$ merely designate the same dioptral factor, D, in the horizontal and vertical planes. See Lenses and Prisms, Ophthalmic.—American Encyclopedia of Ophthalmology.

# REPORT OF THE COMMITTEE OF THE CHICAGO OPHTHALMOLOGICAL SOCIETY APPOINTED FOR THE PURPOSE OF ESTIMATING A BASIS FOR ADJUSTMENT OF COMPENSATION FOR INJURIES TO THE EYE.*

The following report presents in tentative form the conclusions arrived at by your committee. It is hoped that every member will study the report and make suggestions for its improvement before the society adopts the report formally.

After consideration, your committee begs leave to submit the following report:

In estimating the compensation due a workingman for injury to an eye, it is necessary to take into consideration four factors:

I. The vision of the injured eye. This is to be computed in tenths, accepting as full vision the Standard Snellen letter that subtends an angle of 5′ on the retina. The estimation may be made at 10, 15, 20, 25, 30 or 40 feet or at 5, 6 or 10 meters. The amount of vision to be used as this factor is the best possible vision to be obtained with or without the aid of correcting glasses, provided that the strength of spherical glass required be not more than 4 diopters different from the spherical glass required to obtain the best possible vision in the other eye. Should a difference of more than 4 diopters exist between the spherical refraction of the two eyes, the uncorrected vision of the injured eye is to be used. Should the vision of the injured eye be less than 5/100, such vision shall count as 0. The value of this factor is to be 100 or a fraction thereof. (Example—vision of 0.6 shall count as 60; vision of 0.4 shall count as 40, etc.)

II. The vision of the uninjured eye. This is to be computed in tenths, adopting the same standard as that set for the injured eye. The vision of this eye is to be the best possible vision obtained with or without correct glasses, irrespective of the strength of such glass. The value of this factor is to be 100 or fraction thereof.

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*Read before the Chicago Ophthalmological Society, December 18, 1916.

(Example.—Full vision or vision of 1.0 shall count as 100, while half vision or vision 0.5 shall count as 50, etc.)

III. Stereoscopic vision. By this is meant the ability to judge depth at arm's length or less, or the estimation of the third dimension. The estimation of the first two dimensions, length and breadth, fall under factor II, while factor III deals with the estimation of the third dimension, or depth perception at arm's length or less. This shall be judged by the Hering Drop Test, which instrument shall be in possession of the Board of Compensation and shall be used by them in determining this factor. Depth perception may be present, or absent, or present to any degree between the two extremes. Should a difference in vision between the two eyes of more than 0.7 exist, depth perception will be lacking; or should there be a difference between the spherical refraction of the two eyes of more than 6 diopters, depth perception will be absent. The value of this factor is to be 100 or fraction thereof.

(Example—Good depth perception shall count 100; failure of depth perception shall equal 0, etc.)

IV. Cosmetic result. The effect of the result of the injury upon the individual cannot be neglected. Complete loss of one or both eyelids produces a disfigurement that should entitle the man to compensation, irrespective of the amount of vision lost, whereas in a case of incomplete loss of vision without any disfiguring, the adjudgment of compensation should not be influenced by cosmetic effect. The value of this factor is to be 50 or fraction thereof.

(Example.—In partial loss of vision by retinal hemorrhage without any external signs, the factor shall count as 50; in loss of one or both eyelids by burns, etc., this factor shall count as 0; partial scarring of one or both lids resulting in a deformity, this factor shall count as 20 or 30, etc.)

In the adjudgment of compensation for ocular injury, the applicant shall be placed in one of two classes:

Class A: Such workman whose employment requires the ability to judge depth at arm's length or less. (Example, machinist.)

Class B: Such workman whose employment is of such character that the ability to judge depth at arm's length is not essential. (Example, trench digger.)

Before compiling these factors into a mathematical computation upon which compensation may be based, it becomes necessary to explain the basis of compensation. The entire or partial loss of the vision of an eye at the time seems an overwhelming disaster. But the effects of such a loss are not as far-reaching or permanent as would seem at first inquiry. About 3% of all individuals have partial or complete absence of the vision of one eye (most frequently without knowledge of such a defect on their part) and these individuals are able to compete in their daily work with normal individuals without appreciable effort. Consequently, the entire or complete loss of vision of one eye handicaps an individual only until he accustoms himself to the altered condition. This occurs within less than one year. Furthermore, depth perception, although essentially a function of two seeing eyes, can be performed equally successfully, after experience, by one eye alone, should necessity so require. The education of this faculty requires about one year. Facial scars gradually become less noticeable and may disappear entirely ultimately, or may be so improved by operative interference that they no longer constitute a blemish. But time is required for such processes.

In view of this preamble, it was decided to recommend that one year's salary, such as was being received at the time the injury occurred, be adopted as a basis of full compensation, or a unit hereinafter to be known as 100.

Complete loss of one eyeball entitles the injured to compensation of 100.

Partial or complete loss of vision of one eye shall entitle the injured to compensation upon the following basis:

Class A: Vision of the injured eye, plus vision of the uninjured eye plus stereoscopic vision plus cosmetic effect, all divided by 3.5, shall represent the ocular efficiency of the injured. This degree of ocular efficiency shall be subtracted from full compensation (100) and the result shall equal the percentage of full compensation to which the injured is entitled.

For example, a machinist is injured in the right eye and the final vision of this eye equals 0.4. The vision of the uninjured eye is normal, he has lost all but about 20% of his ability to judge depth. No external scars can be seen, then—

Factor I = 40
Factor II = 100
Factor III = 20
Factor IV = 50

210 ÷ 3.5 = 60 efficiency.

Compensation (100) minus efficiency (60) = 40% of total compensation injured is entitled to.

Class B: Vision of the injured eye, plus vision of the uninjured eye, plus cosmetic effect, all divided by 2.5, shall represent the ocular efficiency of the injured. This degree of ocular efficiency shall be subtracted from full compensation (100) and the result shall equal the per cent. of full compensation the injured is entitled to.

For example, a trench digger is injured in the right eye and the final vision of the eye equals 0.4. The vision of the uninjured eye is normal; no external scar can be seen. Then—

Factor I = 40
Factor II = 100
Factor IV = 50

190 ÷ 2.5 = 76 efficiency.

Compensation (100) minus efficiency (76) = 24% of total compensation injured is entitled to.

Respectfully submitted,
Harry Gradle (Chairman),
Frank Brawley,
Harry Woodruff.

# EXPLOSION OF THE SNELLEN EYE IN THE ORBIT —REPORT OF A CASE.[*]

BY

WALTER BAER WEIDLER, M. D.,

NEW YORK CITY.

The explosion of the Snellen artificial glass eye while in the socket is a unique accident and seems to the writer to be worthy of record.

Previous to 1900 the artificial eyes in use were simple solid shells of glass.

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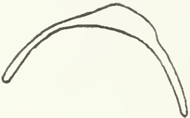
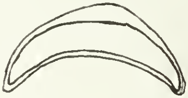
[*] Presented at the Ophthalmic section of the New York Academy of Medicine, Monday, October 16, 1916.

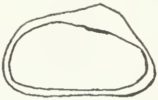
The Snellen "Reform" eye has so many well known advantages over the old style that it is needless to mention them at this time. The only disadvantage seems to be this tendency to explode. This is due to the thinning of shell at a point on the posterior surface of the eye where it is fused. In all of the cases of rupture that have been seen by the different opticians I consulted, they all told me that the rupture always took place at this part of the eye. I was unable to get any accurate report of the number of cases of explosion, but the three firms I consulted gave estimates from their memory of from 30 to 40 similar cases. They were all of the opinion that the explosion was very often caused by the exposure to sudden changes of temperature. One of the firms told me that they warned the wearers of the "Snellen Reform" eyes about going from the extreme cold of the out-of-doors into very hot rooms, on account of the possibility of an explosion.



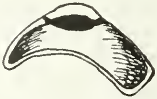
Profile view ordinary glass eye.



Profile view Snellen eye.



Profile view Snellen eye.



Snellen's reform eye.

Mrs. C. K., aet. 45, left eye was enucleated 10 years ago and since that time has always worn Snellen reform eyes which were made to order. Had her last eye about one year when an explosion took place which resulted in the breaking of the artificial eye, August 1st, 1916. For a week before eye exploded patient suffered intense pain in her head, and the socket discharged "pus," and she had been washing the socket with Boric Acid solution. Patient had been doing her own house work as usual, was cooking at a gas stove just before the accident occurred. It was quite hot in the kitchen and she walked to the door to go out in the yard when there was a peculiar explosive noise in her head, which was followed by pain in the socket.

Patient thought she had been shot. There was a sensation of swelling inside the socket. She walked to her bedroom, which was on the same floor, called her daughter and fainted from fear and shock. When she recovered consciousness she did not know just what the trouble had been, but thought that her glass eye had broken. She attempted to remove the glass eye and found it difficult to do so, on account of the great "suction" or vacuum. When the eye was removed a hole was found in the central part of the rear surface about 4x6 mm. in size. The piece had fallen into the socket. There was considerable reaction in the orbit and swelling of the lids which all subsided within 48 hours after the accident. The treatment consisted in the use of Silver Nitrate, cold compresses and boric acid wash. The patient said that the noise caused by the explosion was similar to the bursting of an electric light bulb.

The glass-eye in this case was lost and the illustration is made from another glass-eye, which shows the exact position of the rupture and almost the same size. It would be of interest to have records of all such cases as it might be the means of inspiring the makers of glass eyes to try to overcome this seemingly unnecessary disadvantage of what appears to otherwise be the most satisfactory form of a glass-eye to be obtained.

## TREATMENT OF CORNEAL ULCERS.

BY
S. G. DABNEY, M. D.
LOUISVILLE, KY.

In clean ulcers of the cornea, speaking broadly, the methods of Fuchs have given me the best results: Removal of the cause, if possible, and atropine, a bandage and hot applications. The atropine should be used often enough to keep the pupil as well dilated as possible, the hot fomentations applied to the closed lids for about twenty minutes in every three hours; the bandage reapplied after each treatment and the patient, if the eye is painful or the ulcer extensive, advised so far as possible to keep the other eye closed also. Rest in bed or lying on a lounge is often very desirable, bearing in mind, however, that keeping up the patient's general health is of the utmost importance. Sunshine and a certain amount of exercise therefore may be necessary.

In clean ulcers there are, in my opinion, only two exceptions to these measures—first, of course, in the presence of much conjunctival secretion the bandage must be left off, and second, in rare cases of so-called miliary phlyctenules at the corneal border, eserine is to be preferred to atropine—but this is not the rule.

Indeed so far as my experience goes the corneal ulcers in which eserine is called for are rare; perhaps in threatened perforation at the limbus and in the class just mentioned. I have never seen benefit from the alternate use of eserine and atropine.

Dionin used every other day (one or two drops 10 percent solution) has been useful even in the early progressive stages of corneal ulcer, although Fuchs classes it with the irritants and advises it only in the reparative stage. Yellow oxide ointment, calomel and other stimulating substances should not be used while the eye is still acutely inflamed and the ulcer progressing, except in that form of phlyctenular disease called fascicular keratitis and not then if it proves painful.

Is it necessary to put a protective dressing on the eye after removing a foreign body from the cornea? I believe that except in very superficial abrasions it is best to do so.

As the symptoms diminish and repair begins such applications as the yellow oxide of mercury salve and calomel and other irritants are of decided value and their long continuance may lessen the subsequent opacity if the ulcer has been deep enough to leave any.

In infected ulcers a bacteriological examination may help; the pneumococcus in ulcus serpens and the gonococcus in gonorrhea may be strongly suspected from the clinical picture. The Morax-Axenfeld bacillus is said to be sometimes the cause of small marginal ulcers, usually clean, however.

In purulent ulcers the same medical measures, namely bandage, atropine and hot fomentations are indicated—the bandage of course to be omitted if there is much secretion. It has been claimed that bandaging favors the growth of the micro-organisms by the increased temperature but clinical experience does not, in my belief, sustain this view. In addition to these measures local antiseptics are often called for. Of these the two most valuable are iodoform and tr. iodine. Numerous others are applicable. Somewhat recently a quinine derivative known as optochin has been highly endorsed for pneumococcus corneal ulcers and to a less degree for the gonorrhoeal and others.

Optochin is synthetically ethyl-hydro-cuprein, a one percent solution being dropped into the eye every hour. Recent reports from Howard Hansell, Wyler, Maitland Ramsey and others are so encouraging that the remedy would seem at least worthy of trial in various corneal diseases such as ulcus serpens, trachomatous and gonorrheal ulcers. (In parenthesis we note Wyler's excellent results from it in vernal conjunctivitis.)

Prince last spring highly recommended "Pasteurization" of corneal ulcers. This name is derived from the process of sterilizing milk by keeping it for a time at moderately high temperatures (130 F.) as suggested by Pasteur. In corneal disease the process is carried out by holding an egg-shaped copper ball (on a holder) heated very hot, $\frac{3}{16}$ of an inch from the cornea. The heat should first be tried by holding the instrument near a thermometer and seeing that the temperature does not go above 150 (the pneumococcus is instantly destroyed by temperature of 149). Prince and others claim that the spread of infected ulcers is thus promptly arrested and healing brought about with less destruction of tissue than by direct cauterization. Medical measures failing my own custom has been to thoroughly cauterize the infected area with the galvanocautery, using cocaine ten minutes previously to produce anaesthesia and a two percent fluorescein to outline the ulcer. The cauterization often has to be repeated—the scar from it has been less than I expected.

The old and well known incision of Saemisch I have never used, preferring cauterization—nor have I tried the suggestion of Ball in regard to ulcers with impending perforation: namely, daily paracentesis, a miotic and a bandage. Other highly commended measures are subconjunctival injection, with substances varying from normal saline to a solution of bichloride of mercury and a 1-500 solution of cyanid of mercury.

The most positive and dramatic effects have been claimed by Dr. Jones of Maryland for the last remedy. He claims that the violent reaction is what does most good. With 2 cc. of the 1-500 cyanid solution he injects one-eighth grain each of acoin, morphine and dionin with boric acid and a little salt,—increasing the morphine to one-fourth grain if the pain is already severe. Others of high standing have found Dr. Jones treatment produce extraordinary results and it would seem worthy of trial in very serious and obstinate cases. Of course

Darier, Woodruff and others used cyanid of mercury sub-conjunctivally some years ago. but so far as I can find not in such strong solutions.

Turning now to the treatment based on bacteriological examination: In ocular disease perhaps the most interesting chapter in this line is that of tuberculosis; it is extensive, but our subject tonight limits us to corneal ulcer and the type here to be considered is mainly phlyctenular keratitis.

As regards the effect of tuberculin therapy on the eye, two difficulties occur in estimating its results: first, as stated by Posey and others, the only certain way in most cases of making a diagnosis is by obtaining a focal reaction in the eye after tuberculin injection, and in many reported cases this is not in evidence; second, in nearly all of the cases I have seen reported the old well established remedies were used at the same time.

Thus Derby in Phlyctenular Ophthalmia by the Von Pirquet test found over 92 percent tubercular—but it is not stated how many of these showed focal reaction; moreover Derby states that tuberculin treatment is not necessary but generally hastens cure. Theobald after carefully summing up the evidence as to the cause of phyletenular ophthalmia holds to the old view that it is an eczematous disease often due to intestinal toxaemia.

Sydney Stephenson suggests that the disease is due to bovine tuberculosis. This is somewhat corroborated by the bacteriologists who tell us that it is chiefly in children that this form of tuberculosis prevails. Stephenson makes the practical point that a careful examination of the milk may be important as a preventive. Summing up:

First: In clean corneal ulcers, atropine, bandage and hot fomentations form the treatment for the average case—the cause of course being removed. In very slight abrasions from a foreign body the removal of this may be sufficient.

Second: In purulent ulcers the same measures should be carried out—the bandage of course being omitted if there is much secretion. Local antiseptics such as iodoform or tincture of iodine, and if these do not arrest the ulcer, the galvanocautery should be applied.

Third: In threatened marginal perforation and occasionally in miliary phlyctenules eserine may be better than atropine.

Fourth: In phlyctenular keratitis resisting ordinary measures tuberculin is worthy of trial even though the diagnosis of ocular tuberculosis is not perfectly established; and as a thorough examination of the chest and other parts of the body is necessary before using tuberculin, an experienced general physician should work in association with the oculist.

Fifth: The use of sub-conjunctival injections of cyanid of mercury is to be commended in very severe and obstinate purulent ulcers.

Sixth: Ethyl-hydro-cuprein and the Pasteurization treatment are worthy of further trial.

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## IN RE CORNEAL ULCERS, A PRACTICAL NOTE.

BY
H. B. YOUNG, A. M. M. D.,
BURLINGTON, IOWA.

The treatment of corneal ulcers with super-heated air, "Chauffage," or "Pasteurization," has probably not had the general endorsement it deserves. This may be accounted for in several ways, viz., the instrument makers have been slow in exploiting a suitable tool; something may depend on the type of ulcer, and the procedure has seemed almost too simple to be effective.

But there has been no real need to wait for the special tool. One may borrow from the nearest dentist, or purchase at trifling cost (as I did years ago) a "cavity drier," heat the tip to a cherry red, squeeze the rubber bulb, and so pump a fine stream of burning air exactly upon the infected area.

As to the type of ulcer it may be found that in those with small openings (the so-called "corneal abscess") it will be better to first make a wide crucial incision through the overlying tissue, elevate the flaps and gently scrub the cavity with a small cotton shod toothpick. It may be even better to have the cotton just moistened with 95 per cent carbolic acid. In a recent case of this kind I could abolish the pain in a minute with the burning air, did so repeatedly; but I made no real headway until I resorted to the incision. And I may add that the resultant scar was surprisingly small; also that this is not a solitary experience. On the simplicity of the procedure words need not be multiplied. In proportion to the head of the bulbous tip one may get any effect from simple analgesia up to actual cooking of the tissues, real cauterization, but without the risks of the hot wire contact.

# REPORTS OF SOCIETIES

## CHICAGO OPHTHALMOLOGICAL SOCIETY.

DR. WILLIAM E. GAMBLE, PRESIDENT.

OCTOBER 16TH, 1916.

### Retinitis Proliferans.

Dr. E. K. Findlay reported a case of retinitis proliferans and exhibited the patient, demonstrating the progress within one year.

*DISCUSSION.*

Dr. Harry S. Gradle asked Dr. Findlay whether, at any time, he had noticed the presence of hemorrhages either into the retina or vitreous.

Dr. Findlay replied that the hemorrhages were only in the retina; that large areas of hemorrhages were seen around the disc. There were also hemorrhagic masses in the vitreous.

Dr. Gradle thought the case should be classed as one of exudative retinitis rather than retinitis proliferans. He thought it was Koch who pointed out that retinitis proliferans is due to the proliferation of the glia, whereas in the exudative form there is connective tissue and organized exudate. He believed it was Noguchi who claimed that this form of exudative retinitis is either the result of hemorrhages into the retina or the vitreous impinges upon the disc and from the disc there arise new strands of connective tissue in the retina itself; consequently, he thought the case reported by Dr. Findlay should be classed as exudative retinitis rather than retinitis proliferans.

Dr. Findlay said he preferred the term retinitis hemorrhagica-hyperplastica which covers quite the same thing as Dr. Gradle had referred to. The condition was entirely due to hemorrhages. There was a proliferation of Mueller's fibers and the formation of connective tissue.

The interest in the case to him was largely on account of the difficulty in finding any causal factor in a man in such a healthy condition as the patient was.

Dr. William E. Gamble had been observing this case in the last year and his judgment is that the connective tissue in the eye was not the result of hemorrhages. There was too much connective tissue and too little hemorrhage, and then it did not seem to spread from the hemorrhagic areas or plexuses

### Report of a Case of Juvenile Tabo-Paresis With Optic Atrophy, Treated by Injections of Mercury Into the Lateral Ventricle.

Dr. George F. Suker, reported this case. The patient is Miss P. F., aet. 16, who contracted lues from her father while a baby but a few months old. Father contracted an active lues a short time prior. Mother is free as a Wassermann and spinal fluid were negative.

The girl grew up having had the usual sicknesses of childhood and apparently gave no symptoms of lues to speak of, at least, the mother said the child was well until about the age of 15. Has menstruated but twice. Has a myopia of 4 diopters in each eye. Is rather small for her age, though both parents are tall. Gives no evidences of any pituitary disturbances; X-ray plates negative.

At the age of 15 she began losing sight rapidly, became nervous and irritable, forgetful and showed difficulty in walking, very dizzy and had very severe headaches and more or less lancinating pains.

A complete neurological examination by Dr. L. Harrison Mettler proved her to be a juvenile tabo-paretic, giving all the classical symptoms.

The eye findings are as follows: 1. Maximumly dilated irides. 2. Moderate degree of divergent strabismus. 3. Complete optic atrophy in left eye (primary). 4. Rapidly advancing optic atrophy in right (primary). 5. Four diopters myopia in each eye, this gave 12/60 vision in right eye. 6. The field for form and color, just prior to operation, is as per charts.

On May 29, the right lateral ventricle was tapped and 10 c.c. of fluid slowly withdrawn; 5 c.c. of this with 1/100 gr. of bichloride of mercury were slowly reinjected. (Luer syringe used.)

No marked reaction followed this injection; operation under general anesthetic.

After 48 hours the headaches disappeared and have not returned up to date. The dizziness rapidly improved. General conditions satisfactory. Second injection (under local anesthesia ten days later, this time 1/75 gr. mercury in ½ of the amount of ventricular fluid (8 c.c.) withdrawn was reinjected.) Reaction rather pronounced within 24 hours, i. e., headache and dizziness; this lasted but for 12 hours.

Third injection two weeks after the second and this time

1/50 gr. mercury was injected. Reaction more pronounced than after second, but the continuous application of an ice bag to the head allayed all symptoms.

Fourth injection ten days after third and 1/25 gr. mercury was used. Reaction prompt and rather severe, but controlled as before.

Up to date, the vision in right eye is the same (12/60) and the field larger and more regular than before injections were made.

The patient is greatly improved in every respect and after five months vision has not decreased any, though before injections were made, vision rapidly fell to 12/60.

It must also be stated that inunctions of mercury have been consistently used in large doses since the last injection.

One cannot expect a restoration of nerve fibers in an optic atrophy, but if the atrophic process can be checked, some vision can be saved, much has been accomplished.

One interesting feature in the case is the dilatation of the irides instead of an Argyll-Robertson pupil. The mother said the pupils were large for a number of years before she began to complain of headaches and dizziness, etc.

Following the lateral ventricle injection, the reactions sometimes are very pronounced, within 12 to 24 hours after, necessitating a spinal puncture and the withdrawal of about 10-15 c.c. of the fluid. The reactions may manifest themselves as terrific headaches, nausea, extreme dizziness or more or less stupor. If the application of the ice cap to the head does not mitigate the symptoms promptly, then resort to spinal puncture.

*DISCUSSION.*

Dr. Francis Lane asked Dr. Suker whether he regarded this as a primary ascending or descending atrophy of the optic nerve.

Dr. Suker said the question of whether it was a primary ascending or descending atrophy of the optic nerve was very pertinent. Speaking of primary optic atrophy, we have it starting in the retina and ascending. If we accept the presence of the spirochete, although not yet demonstrated, as being present in the nerve fibers posterior to the optic nerve itself, then we must look upon the spirochete as setting up a local low-grade inflammatory condition, and it might be a descending instead of an ascending optic atrophy.

There was no doubt in his mind that the direct injection of mercurial preparations or salvarsan, or neosalvarsan had a definite field of value. This was not the only case he had had under his care. He recalled three cases in which the patients did not lose any more vision than at the time he first observed them. The oldest one was practically nine months. In nine months optic atrophy usually showed a marked advance, and if one could check it for nine months, it might be checked for a much longer period.

### Tuberculosis as a Cause of Iritis in Eight Cases.

Drs. E. V. L. Brown and Ernest E. Irons stated that these cases were encountered during an intensive study of the etiology of 100 cases of iritis (J. A. M. A., June 10, 1916).

In addition to these 8 cases, clinical evidence of the presence of tuberculosis, either inactive or active, was found in 26 others of the 100 cases. This evidence varied in extent and nature in the several cases; in 24 a rise of fever of more than one degree, either alone or accompanied by local and general signs of tuberculin reaction, followed the injection of tuberculin; in one there were signs of cavity formation and infiltration, together with Roentgenographic findings and an old history of tubercle bacilli in the sputum; another patient died later of pulmonary tuberculosis and diabetes. In all these 26 cases careful studies showed other infectious processes which appeared to the writers to stand in closer etiologic relation with the iritis than did the tuberculous infection. They warn strongly against basing a diagnosis of tuberculosis on incomplete clinical information or on placing great reliance on the presence or absence or a tuberculin reaction unsupported by collateral evidences. They pointed out that in some of the 100 cases there were several infections occurring together, such as tuberculosis, syphilis, gonococcal or other pyogenic infections, in which careful investigation failed to demonstrate to their satisfaction which one of the possible causes was responsible for the disease in the eye. On the theory of probabilities, one or more of these cases may have been due to tuberculosis, but should not be included with the eight cases described, in which the evidence seemed fairly clear cut.

Case 29. Machinist, aged 23. Active plastic iritis; active pulmonary tuberculosis. Roughness of breath sounds; dullness and fine rales over the upper lobe of the left lung both anteriorly and posteriorly; hemoptysis; tubercle bacilli found in the sputum. Lues denied. Gonorrhea three years ago.

Case 23, housewife, aged 35, recurrent plastic iridocyclitis (fourth attack). Inactive pulmonary tuberculosis. Harsh right apex; relative slight dullness; X-ray findings "similar to pulmonary tuberculosis," temperature of 100° 20 hours after subcutaneous injection of 3 milligrams of O. T.; repeated phlyctenula-like efflorescences about the limbus during tuberculin (BE) treatment. Repeated Wassermann and Neisserian complement fixation tests negative. Teeth, tonsils and sinuses negative.

Case 30, J. R., laborer, aged 24. Iritis, secondary cataract, inactive pulmonary tuberculosis. Breath sounds harsh and prolonged over the right apex, and left subscapular region; X-rays "quite characteristic of pulmonary tuberculosis;" ten weeks persistently subnormal temperature; 5 mg. O. T. negative. Teeth, tonsils, sinuses, blood, Wassermann and Neisserian tests negative.

Case 70. D. S., laborer, aged 38, recurrent active plastic iridocyclitis (and hemorrhagic retinitis and old choroiditis). Present attack incited 9 days ago by trauma—eye struck by a small piece of iron. Inactive pulmonary tuberculosis. Voice sounds increased and piping rales heard posteriorly in the right chest at the apex of the lower lobe; temperature of 103° thirty hours after 5 mg. O. T. Teeth, tonsils and sinuses negative. Wassermann and Neisserian tests negative. (History of an old gonorrhea.)

Case, 71, nurse, aged 38. Recurrent "serous" iridocyclitis with corneal lesions suggesting phlyctenular disease and old choroiditis. Inactive pulmonary tuberculosis. Occasional rale heard at right apex and a slight rise (99.4°) after 3 mg. O. T. twenty months later "daily rise in temperature to 99.4° enlarged bronchial glands and evidences of inactive lesions at both apices" (Dr. H. H. Stark, El Paso). Teeth, tonsils, sinuses and blood, Wassermann and Neisserian tests negative.

Case 81, school-girl, aged 18, chronic "serous" iridocyclitis, with old anterior choroiditis. Inactive pulmonary tuberculosis. Right apex breath and voice sounds decreased, bronchial breathing increased posteriorly down to mid-scapular region on the right side; X-rays show fan-like radiating shadows, more pronounced in the upper right lung, with increased shadows at each hilus; loss of 13-15 pounds in weight; a persistent daily rise in temperature of .5 to 1.5° 3 mg. O. T. gave 99.8° at the 16th hour. Tonsils, teeth, sinuses and Wassermann and Neisserian tests negative.

Case 40, male, aged 30, chronic recurrent plastic iridocyclitis, with old choroiditis. Repeated examination of the lungs showed no demonstrable disease. Well marked general and temperature reaction (101°) to 3 mg. O. T. on the second day. Definite healing of the uveitis following tuberculin (B. E.) treatment. Teeth, tonsils, sinuses, Neisserian and Wassermann blood tests negative.

Case 52. Locomotive fireman, aged 29. Chronic nodular iridocyclitis, incited by strongly irritating medicine used in the eye by mistake. Repeated examination of the lungs showed no demonstrable disease. 0.5 mg. O. T. gave 100.8° at the 48th hour and 2 mg. gave 100° at the 24th hour. Teeth, tonsils, sinuses and Wassermann and Neisserian blood tests negative.

### *DISCUSSION.*

Dr. George F. Suker said it was a question whether or not one was able to demonstrate the presence of tubercle bacilli either in the iris itself, or whether one looked upon the iritis as being caused by the presence of the tubercle bacillus, or by a toxin elaborated by the presence of the tubercle bacillus elsewhere in the body, being practically a transferred infection. If this was the case, not only the local condition itself must be fully looked into, but the general condition of the patient needed more attention.

Dr. Brown stated that as to whether the iritis was of a toxic or bacterial nature, he did not think there was any particular consensus of opinion, and there was no particular evidence of any value to show whether the iris might not contain tubercle bacilli, but men working in the bacteriological departments seemed to emphasize the presence of organisms or the toxins of organisms.

Dr. William H. Wilder asked whether traumatism to the eye in a tuberculous subject would have the tendency to cause a lesion that might ultimately become tuberculous.

Dr. Brown replied that three cases were of that type. The 8 cases reported constituted a small percentage of 100 cases. They got tubercular reactions in something like 40 of the cases.

Dr. Willis O. Nance said that in the etiology of 100 cases he had noticed in over one-third of them there were dental or tonsillar troubles, and about one-quarter were due to syphilis. He would like the essayist to say something further about this.

Dr. Brown said that 98 out of 100 cases they had Wassermanns made both at the Presbyterian and Cook County Hospitals, and where the reports conflicted they were done over again. They eventually got the men in the two laboratories to agree on the same technic. Of 17 cases examined, 9 of them had positive Wassermanns, and 8 of them had positive gonococcal complement fixations. A lot of them had tuberculous infections; many of them had 3 to 5 infections.

Dr. Nance said he was interested in the dental and tonsillar aspect of these cases and would like to know more about them.

Dr. Brown said the dental cases were based largely on alveolar abscesses, and not particularly upon pyorrhea. Some therapeutic observations were made in connection with the diagnostic points. Attention was given to the dental aspect of these cases by Dr. Potts.

In some cases the ciliary injection disappeared and a few days later returned with secondary glaucoma, and tension dropped very materially as the result of extracting teeth. The tonsillar cases were seen and attended to by Drs. Shambaugh, Friedberg and Sonnonschein.

Dr. Francis Lane recalled a very difficult case of tuberculous iridocyclitis following a non-perforating injury of the eye which he and Dr. Dodd reported to the American Medical Association in 1911. In this case a typical giant cell growth was found in the ciliary body in which typical tubercle bacilli were found stained in the tissue. Five hundred sections were made of the anterior segment from which 30 or 40 showed typical miliary tuberculous areas.

Dr. Robert Blue asked Dr. Brown whether he had encountered any cases of rheumatic iritis, or whether these were included under the dental or some other heading.

Dr. Brown said that rheumatism was not considered a very illuminating or prolific cause of iritis. Rheumatic iritis was given a hard blow by Dr. de Schweinitz in 1911, and in all these cases there was some form of infection.

## The Use of Eyes of Kittens in Ophthalmic Operative Teaching.

Dr. William A. Fisher stated that pigs and rabbits' eyes had been mentioned and could be obtained readily in large quantities for teaching purposes, but the former did not offer much to the student because as obtained commercially they were delivered enucleated, thus precluding practice upon the muscles, and since they had such a large and thick cornea, they were quite impractical for corneal work. The iris was so thick that operations upon it were likewise very unsatisfactory, but with all these objections the eye of the pig was universally used for teaching operations upon the eyeball.

For work upon the eyeball proper, the eyes of kittens were far superior for all purposes to all others mentioned, and when once used they would never be discarded. As in the case of other animals, the kittens should be killed before beginning work, after having been dusted lightly with powdered naphthalene to dispose of any vermin present. The killing might be most conveniently and cheaply done by the injection of one-half grain of strychnin sulphate intrapleurally.

Any student could with one hundred kittens do as much operative work as the busiest oculist in many years. One hundred kittens (two hundred eyes) would furnish material for four hundred muscle operations, two hundred enucleations, two hundred iridectomies, and two hundred cataract extractions, making in all one thousand operations. If the student used this or twice this amount of material, he could not fail to bring to his operating room an experience and confidence that could be secured in no other way.

The author drew the following conclusions: 1. Students could not become competent to do surgical operations upon the eye by watching others. 2. The eyes of four weeks old kittens were better for teaching ophthalmic operations than were those of other animals. 3. The material was not difficult to obtain. 4. Any student who had prepared himself for ophthalmology could get an operative technic in this manner that was not equalled by any other.

### Detachment of the Retina.

Dr. Hughes reported a case of detachment of the retina. The patient was a man, 40 years of age, whom he saw for the first time a week ago. When first seen, without dilatation of the pupil, one could see a grayish mass, and with dilatation of the pupil one could observe the mass extending well out. With vision about the temporal side of the retina he could distinguish things fairly well. The speaker did not attempt to get distinct acuity of vision, but patient complained of limitation of vision.

The history was of no particular importance. Two weeks before this time patient had an accident which resulted in a foreign body penetrating the eye, he having been hit in the eye by a hot piece of iron flying from a drill. He had no subjective sensation referable to the eye, and complained of no loss of vision up to that time. His general health was fairly good. Patient is of medium size and sallow in color. On examination of the eye one can see where the detachment of the retina begins around the macula, extending nearly over to the disc and becoming elevated about 7 diopters.

He would like to know from the members the true nature of the case.

Dr. William A. Fisher considered the case one of sarcoma of the choroid, and if it were his case he would explain to the man that he had a growth of some kind in his eye; that he would cocainize the eye and draw off the fluid, and if fluid could not be withdrawn he would not hesitate to enucleate the eye.

### Symblepharon.

Dr. John A. Pratt, Aurora, reported a case of complete symblepharon. The eye had been burned by hot metal and the doctor in charge had performed evisceration. The particular feature about the operation for symblepharon that was different from anything he had ever seen, was the making of a double row of holes in the large tin plate prothesis used, and the suturing of the Thiersch graft to the plate, which sutures were cut after six days. The entire graft seemed to have taken, but had contracted to one-third of its original size. His idea now is to build the superior and inferior fornix with the foreskin of a small child, instead of the use of Thiersch grafts.

He would like to know if any member had ever used foreskin in the place of a Thiersch graft, and if so, what the result had been.

He intended to do a Week's operation. While the eye seemed to be doing well, more operations are necessary.

Dr. Suker stated that foreskin, if used as a graft, acted very nicely when transplanted. There was this disadvantage, however, that it contracted much more than skin taken elsewhere. A graft of foreskin would take readily, but the end result was not quite as good as it might be.

### Calcareous Deposits in the Cornea.

Dr. Harry S. Gradle reported the case of a man who came to see him a week ago with a history of having had repeated ulcerations of the cornea, evidently of neuropathic origin, for the past seven years. He had had twelve ulcerations during this time. The last attack occurred last September. The Wassermann reaction was negative; tuberculin reaction was negative.

An interesting feature is the calcareous deposits particularly in the right eye. There is one deposit over the pupillary area, the result of the last attack in December and January. Patient had tried practically everything without avail. He had gone through routine procedures, such as massage and heat, without relief.

It was suggested by an internist that in hyperparathyroidism there is a deficiency of calcium in circulating plasma. The patient has been fed large quantities of parathyroid extract trying to produce a deficiency of calcium which will lead to some absorption of the calcium in the cornea. If this is of no avail, the only thing is to resort to some form of operation.

Paul Guilford, Secretary.

## CHICAGO OPHTHALMOLOGICAL SOCIETY.

DR. WILLIAM E. GAMBLE, PRESIDENT

November 20, 1916.

### Tower Skull With Double Optic Nerve Atrophy.

Dr. Michael Goldenburg read a paper on this subject and stated that anomalies in the development of the skull are very common and have been thoroughly studied by workers in this particular branch of pathology.

The Tower skull or thurmschadel as the Germans call it, is of special interest to us as ophthalmologists owing to the frequent pathologic eye findings associated with this condition. Not that the eye findings are only found in this particularly shaped head or that ocular lesions are always found here, but they come to us as ophthalmologists for the eye affection and we find this probably the most common deformity of the head. Again, it is quite probable that malformations of the head are more commonly the cause of eye lesions than one is led to believe from the available literature. We find, for example, that up to 1912 only 26 cases of tower head had been reported.

Enslin who was looking for these cases over a period of 2 years out of 9380 eye patients found 16 cases of this kind; so that it is quite apparent that if we do not look for a special condition we do not find it unless it is an extremely marked case as in the one we present.

Tower skull per se as the cause of eye disease is still problematic for we find a number of cases reported of this shaped head without any eye lesion, at the time of examination; of course it is quite possible that a transitory eye lesion might have been present and has left no evidence later in life when examination was made.

One could reason that this definite skull malformation must have some influence, for we find that in all the cases reported we have virtually one eye lesion and that an affection of the optic nerve. In the 42 cases reported, 36 had a post-neuritic atrophy, 2 with a double neuro-retinitis, 2 with one-sided papillitis and post neuritic atrophy and 2 cases with primary optic atrophy.

The question that arises is, whether tower skull is the direct or indirect cause of the optic nerve lesion. The theory propounded that the causal factor responsible for the malformation of the skull is also the cause of the optic nerve lesion has a number of adherents.

We find that maldevelopments of the skull are due to a premature ossification of the different sutures and in this particular form the coronal suture is closed very early with compensatory development or maldevelopment takes place vertically to the closed suture.

The probable cause of the premature ossification of this suture, the time of onset whether intra or extra uterine is very interesting and much can be said, but we shall only state at this time those essentials that might be associated with the eye lesion.

In a number of cases reported and in the one we are presenting we are inclined to believe that this process began during the prenatal period.

That an osteitis is present and is the probable cause of the premature ossification of the sutures nearly every one is agreed upon. The etiology of osteitis, at least in adult life is infection of some character. That a metastatic infection during intrauterine life is possible there is no doubt and is not strange to ophthalmology.

The theory of excessive nutrition of the bones possibly brought about by a passive hyperaemia as propounded by Bier and referred to by obstetricians under the caption of abnormal positions or flections of the fetus, must also be given some consideration.

Michel states that he is inclined to think that the change in the growth of bone is due to an increased process of nutrition.

The history in our case plus the X-ray plates will, we believe, throw some light on this obscure subject.

The family history as far as we could ascertain is apparently negative on both sides of the family tree. The mother of our patient has two additional children living, and as far as one can see they are perfectly normal, the photograph shows an older sister. One child died of a valvular lesion.

The mother states that all her labors were normal, but that she had some difficulty with our subject, the attending physician having found the head rather long but succeeded in delivering her without the use of instruments.

When the child was born it had too many soft spots on the top of the head, particularly in the center, where the mother says there was noted a marked thumping. The front part of the head was hard. Both the veins and arteries over the temples were very prominent and a marked pulsation was present, particularly so upon the left side. There seemed to be a large hard protrusion somewhat above and back of the left ear.

Physicians who saw the case at that time thought the child had been delivered by instruments. The child had great difficulty in nursing and breathing at the same time, and even when not nursing, breathing sounded as if she were choking. The attending physician was inclined to think there was a growth in the nose, but nothing was done in this direction. The attending physician's opinion in regard to her head at this time was that she had water on the brain.

As regards the eyes they were very prominent and the child did not seem to show evidence of being able to see very much as far as the mother can remember. The child had no lesions of any kind on the skin and was apparently otherwise normal. When four months of age she developed a rash on the left cheek and later also on the right cheek, but this rash soon disappeared.

At the present time we have the tower skull with a bitemporal circumference of 17¾ inches. A sagittal measurement of 14¾ from nasion to occipital protuberance. Perpendicular from nasion to highest point of the skull of 5½ inches and an anterior posterior diameter of 5½ inches.

The eyes are very prominent, but it is questionable whether this condition can be called a true exophthalmus. The eye balls are very large and the sclera thin. The cornea normal in size, transparency and sheen. We have a divergent strabismus with a marked horizontal nystagmus.

Anterior chamber and iris negative. The pupillary opening is about 6 mm. and equal in both eyes and reacts very sluggishly to bright light. Tension negative. Vision in R eye—Nil. Retinoscopy of—5.00 in both meridians and with no improvement in vision L.4/200—6.50—3.50 ax. 150—8/200.

Fundus-disks are dirty gray and outlines not well defined, could not be sure as to the caliber of the vessels, owing to the marked nystagmus, but we are inclined to think that there is some evidence of a perivasculitis. Direct ophthalmoscopy was very difficult and unsatisfactory.

NOSE. Vestibule negative; septum as if it had been pressed down upon and lies spread over the floor of the inferior meatus, pronounced deviation high up.

Note the wrinkling of the skin around the mouth, with no evidence of scars, similar wrinkling of skin, but very much more marked and almost black as if dirt had been ground into it, is noted over the abdomen, axillae and on legs which was pronounced by a dermatologist an ichthyosis with an abnormal distribution.

The teeth are in bad condition and the alveolar process of the superior maxilla is very thick, the hard palate is very high and the greatest distance between the base of arch is 5/16 of an inch. The soft palate is very long, but otherwise negative. Inf. maxilla negative.

EARS. Externally negative; drums absence of sheen and slightly retracted. Hearing very acute both for low and high tones, a rather remarkable feature is that the bone conduction is as great and sometimes greater than the air conduction.

General health good, her only complaint is that of a little pain over eyebrows especially in cold weather.

Mentally when one takes into consideration the vision and lack of education we can say she is quite bright. Plays the piano by ear.

Our roentgenographs show the skull to be very irregular in thickness with numerous depressions on the inner table undoubtedly formed by the convolutions of the brain. Suture lines were not demonstrable and the grooves or the meningeal vessels or diploic veins were markedly accentuated. The sella turcica was approximately normal in size. No evidence of pathology responsible for the exophthalmus. The roentgenographer further states there is premature ossification of the sutures leading to a condition known as internal hydrocephalus and the increased intracranial pressure is responsible for the peculiar markings on the inner table.

Owing to the peculiar facies we were inclined to think of congenital lues, but this had to be excluded by the family history, clinical and serological findings. Urinalysis negative. Tubercular tests were not made.

It seems to us that this case is well worthy of presentation for several reasons.

The apparent evidence of the disease during the prenatal period. The fact that 75 per cent of these cases are seen in the male, and by far the largest percentage of total or partial blindness occurs in the male. Most of the cases are not recognized until long after birth, when the patient usually comes in for some other condition, or his or her failure to pass some eye examination when a post neuritic atrophy or a primary atrophy is found, and the thought suggests itself to us, that possibly some of the so-called amaurotic eyes could be explained upon these grounds.

According to von Graefe, the atrophy following a neuritis can for a long time be recognized as such, but not forever, as later it cannot be differentiated from a primary atrophy.

The fields are as a rule the same as in papillitis, i. e. concentric contraction. Where vision was good there was found no enlargement of the blind spot.

Dr. E. K. Findlay reported a case similar to that narrated by Dr. Goldenburg.

Dr. Casey A. Wood presented the subject of "Area Centralis in the Eyes of Birds." His remarks were illustrated by numerous slides.

Dr. Robert Von Der Heydt gave a translation of part of a lecture by O. Haab, of Zurich, entitled "A New Form of Keratitis or Inflammatory Degeneration of the Cornea." A continuation of the translation will be presented at the next meeting.

### The Spontaneous Explosion of Snellen Improved Artificial Eyes.

(See original article in the December, 1916, OPHTHALMIC RECORD.)

*DISCUSSION.*

Dr. Robert Von Der Heydt related the case of a patient who wore a Snellen eye, but the eye did not explode. In this case, where the socket presented, there was an intractable conjunctivitis which did not respond to any treatment. Presumably the eye may have had a crack in it. The eye was not old. It looked smooth on careful inspection. He held the eye in his hand and in so doing must have exerted a little pressure, when it came apart and emitted an odor which proved that the eye was filled with some liquid and had probably been cracked for a long time. He thought this case explained some of the forms of conjunctivitis met with in artificial eyes that would not respond to any treatment.

Dr. John A. Pratt, Aurora, said that about six months ago a man came to his office wearing a Snellen eye, and stating that he felt something had happened to it. The patient tried to take it out of the socket, but could not do it. By means of pressure the doctor took it out and found a hole in it about one-third the diameter of the eye, and on account of the vacuum the eye was sucked right in and could not be drawn out by the patient.

Dr. Michael Goldenburg recalled a case in which an artificial eye broke in the orbit, but the occupation of this patient was such as to necessitate his traveling from a warm room into a cold one, like an ice-chest, which might have had something to do with the explosion.

Dr. Rochester, in closing, said the point about the vacuum drawing discharges into the eye was brought to his attention by a maker of these artificial eyes who states that this one thing produces the symptoms and frequently is the cause for continued irritation. A small crack has occurred in the eye and the eye becomes the seat of an irritating, foul smelling material which keeps up constant irritation.

Dr. C. F. Burkhardt, Effingham, stated that while he had not had trouble with artificial eyes exploding, he recalled two instances which occurred in his office which might have proved more serious than the explosion of an artificial eye. In using glass electrodes he had two of them explode. He was using them at the time in connection with patients, and the accident might have proved dangerous because by the explosion glass was scattered over his operating room. One of the glass electrodes was in a glass case at the time of the explosion. The glass electrode was made similar to the artificial eye, and he presumed the explosion was due to the vacuum.

Paul Guilford, Secretary.

7 W. Madison St., Chicago.

## ROYAL SOCIETY OF MEDICINE.

### SECTION OF OPHTHALMOLOGY.

### MR. WILLIAM LANG, F. R. C. S., PRESIDENT.

On November 1st the first meeting of the session was held

In his inaugural address, the President advocated the appointment of a small committee to initiate and organize research, with, perhaps, a bureau for collecting details of rare cases. In this way a quantity of valuable material would be available for research scholars, or for a committee appointed to make use of it. Further, a card-index system for recording all literature bearing on the science of ophthalmology in the United Kingdom would be very valuable. At present pathological confirmation of the findings of clinical observation on an adequate scale was lacking, especially in regard to septic foci as the cause of many eye diseases. With the society's excellent laboratory, it only needed a system of subsidised workers. This could well be the occasion for joining with other bodies in a crusade to instruct the nation in the cultivation of right habits, notably in regard to clean mouths. The same purpose ran through all this effort: to decrease by British effort the power of every disease.

Mr. G. Winfield Roll showed a case of congenital pigmentation of the optic disc, in a subject of glycosuria. The right eye was affected with retinitis: the vessels in the remainder of the fundus were normal.

Mr. Leslie Paton exhibited a case of pigmented plaque of the cornea, of obscure nature, though he inclined to the view that it was melanotic sarcoma. There was a peculiar separation of the fibres of the iris. Mr. Mayou thought it was the appearance which would be produced by an injury, but there was no history here of trauma. The President thought it was an anterior synechia, and recommended inspection with a stereoscopic apparatus.

Dr. Frederick E. Batten showed a child with pigmented degeneration of the retina, associated with epileptic fits. The sight had failed somewhat rapidly during the past year, and a central scotoma in both eyes had been demonstrated, somewhat to the temporal side. There was also optic atrophy, and some pigmentary disturbance at or near the macula. Physical examination of the nervous system was negative. The father was syphilitic, but this patient showed no trace of that disease. The case was discussed by Mr. Paton, Mr. Rayner D. Batten, Captain Ormond, Mr. Mayou, Mr. Parsons, and the President.

Mr. N. B. B. Fleming showed a case of retinitis circinata, with changes in blood vessels, and Mr. A. C. Hudson exhibited a new small speculum.

Lieut.-Colonel and Mrs. R. H. Elliot submitted a contribution on the photography of macroscopic eye specimens, its object being to help those who desired to photograph macroscopic eye specimens. The authors regarded the following points as of importance: (1) The photograph must be taken in water, without the intervention of glass or other similar material. (2) The source of light must be good and even. (3) The camera must be placed immediately above the object, to avoid reflexes. (4) The object of the photograph must be so placed that its image will occupy the center of the plate, and a method of adjustment should be available to secure this end with the least inconvenience. (5) A simple arrangement is necessary to fix the eye in position during the whole exposure. (6) To save unnecessary re-touching, the object should be photographed lying on a dark and uniform surface, to obviate the background disturbing the attention of those viewing the picture. (7) Care should be exercised in the choice of a camera, and exposure-periods must be carefully studied. For the making of lantern slides, the contact method is recommended, and the authors directed attention to the following points: correct exposure, the preparation of plates for exposure, development and fixation of the slides, the drying of the plates, the reduction and intensification of slides, and the varnishing of them.

Dr. Frank E. Taylor and Mr. Norman B. B. Fleming contributed a paper on a case of bilateral glioma of the retina with multiple metastases. The patient was a female child aet. 3 years, in whom an abnormality was noticed in the left eye 18 months previously. On admission, there was a fungating growth protruding between the lids of the left eye, keeping them separate. The mass was bathed with a thin semi-purulent discharge. The right eye was much enlarged, and apparently proptosed, the iris fully dilated and stretched into a thin band at the limbus, the lens being in contact with the posterior aspect of the cornea. The growth was lemon color. No reflex was obtainable ophthalmoscopically. Mr. Elmore Brewerton (who had allowed him to record the case) operated at once, performing exenteration of the orbit, with partial removal of the lids, afterwards suturing the wound. The right eye was very freely excised. The optic nerve was found to be involved, being surrounded by growth for half-an-inch behind the eye. A fortnight after her discharge, there was a recurrence, half the size of a tennis ball, from which the patient died. She had shown little evidence of pain. Microscopically, the growths were found to be composed of closely-packed small round cells, with large deeply-staining nuclei. A few spindle cells were also present. The body was much emaciated, and the metastases were extensively distributed. The author discussed the subject from a general standpoint.

Mr. Arnold Lawson read notes of a case of recurrent glioma of the retina. The patient was a boy, aet. 3½ years, and the gliomatous eye was removed. The growth had almost perforated the globe. Mr. R. A. Greeves found a large scleral staphyloma at the front, and it was infiltrated with glioma cells, while masses of growth could be traced along the sheath of the foramen. After remaining well six months, there was a recurrence in the orbital cellular tissues, and evisceration was carried out at hospital. There was a further recurrence, and 90 mg. of radium were applied 4½ hours. Free sloughing followed, and the child was kept in hospital 6½ weeks, at the end of which time there seemed to be no sign of growth. Three months later, however, the patient was re-admitted on account of a fluctuating swelling. It yielded pus, at the bottom of which was suspicious pultaceous material. Investigation revealed an extensive recurrence, beyond the reach of either further operation or radium. The child seemed to have a remarkable absence of pain, and seemed fairly comfortable, except towards the end. The papers of Mr. Fleming and Mr. Lawson were discussed by Mr. W. C. Rockliffe, Mr. Brewerton, Mr. Parsons, Mr. Holmes Spicer, Lieut.-Colonel Elliot, and Mr. Treacher Collins, the last-named calling attention to the different methods of spread of glioma and sarcoma of the orbit. One began in the neural epiblast, and the other in the mesoblastic tissue. Sarcoma of the choroid generally spread by metastasis, whereas gliomatous growths spread by continuity, and death occurred from local recurrences, as was shown in a number of cases traced by Mr. Lawford and himself. Lieut.-Colonel Elliot agreed with Mr. Brewerton's operative procedures, speaking from his experience of a number of such cases in India.

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## WILLS HOSPITAL OPHTHALMIC SOCIETY.

October 2, 1916.

PHILADELPHIA

### Report of Cases Illustrating Ocular Complications of Anterior Poliomyelitis; William Campbell Posey, M. D., and Walter C. Swindells, M. D.:

This report included one case of blindness from atrophy of both optic nerves, with paralysis of left abducens, occurring in a boy 7 years old. The eye symptoms appeared three weeks after the primary attack of fever, although an afebrile stage of two weeks supervened between the two. There was also paralysis of the left arm and leg. The attack was attended with pain and rigidity at the back of the neck. As, however, there was no ophthalmic evidence of a previous neuritis, the atrophy being of a simple nature, it was thought not unlikely that the atrophic changes in the nerve may have been induced by the direct action of toxines generated by the disease. Dr. Posey said that the implication of the optic nerve in anterior poliomyelitis is exceedingly rare, as he had been able to find but two other cases in the literature, one cited by Wiekman and another by Tedeschi.

The authors also reported three cases of paralysis of ocular muscles which they had observed in anterior poliomyelitis, one of paralysis of the left VIth, associated with a similar condition of the VIIth nerves. The palsies in this case occurred in a child exposed to infection by his father, a physician, who was attending another case of infantile paralysis at the same time. The paralysis appeared about a month after the initial illness. In the second case, a double ptosis followed directly upon an illness of one week's duration. In the third there was complete external ophthalmoplegia, the paralysis coming on the second day after the illness. Both of these cases occurred in Philadelphia during the recent epidemic.

*DISCUSSION.*

Burton Chance said that while he had not had an opportunity to observe cases of Infantile Paralysis in their active stages, he has had, just as others have had, numerous cases exhibiting sequels of the disease, and his study of the present epidemic very much reminded him of many features connected with the 1899 epidemic of Cerebro-Spinal Meningitis, which he studied in the cases committed to the care of the Municipal Hospital. He does not regard, of course, the two diseases to be at all similar or related, as each is caused by a separate organism, yet he was struck by the particular statement of Dr. Weisenburg that in this present epidemic the affection has not been limited to the myelin, but is actually a meningo-myelitis. It therefore is not to be wondered at that he noticed motor and sensory changes in the ocular apparatus. It is to be deeply regretted that ophthalmological studies have not been made at the Municipal Hospital during this present epidemic, because in the cases in which meningitis has developed, sooner or later serious and progressive changes it should be feared may appear. Therefore, he urged, just as he did during his studies in the epidemic of the other disease, that as soon as possible after they are discharged by the Hospital, the patients should be sent to receive ophthalmological study and treatment.

Dr. T. H. Weisenburg stated that he was of course very much interested in the cases of Drs. Posey and Swindells, for during the present epidemic of infantile paralysis he had studied many similar cases in the Municipal Hospital. He was not as yet prepared to state the exact number of cases that he had seen in which the ocular muscles were involved but he thought that there must have been fully twenty-five or perhaps more.

The ocular complications were of different kinds. He had only seen one in which there was blindness. In this case there was also a complete ophthalmoplegia. Unilateral 3rd nerve paralysis he had seen only once, bilateral 3rd nerve paralysis possibly three or four times. Paralysis of associated ocular movement was found in a number of instances either to one or both sides. Sixth nerve paralysis was the most common ocular complication. In one case it was seen alone, in two or three cases bilaterally, but in the majority of instances it was associated with 7th nerve paralysis. Most text books discussing infantile paralysis state that 7th nerve paralysis is very common and that it occurs alone. This has not been Dr. Weisenburg's experience, for in the majority of instances he found an associated 6th nerve palsy and in some instances 5th nerve palsy. Fourth nerve palsies were not found alone, but always in association with the 3rd cranial nerve.

In only two or three instances were the ocular cranial nerves involved alone, for in the majority of cases there is an associated paralysis in the limbs and chest and abdomen. It can be taken for granted that whenever ocular paralysis occurs that the infection has been very great and that the paralysis is of considerable extent.

The prognosis of course varies and depends upon the extent of the ocular involvement. In the 6th nerve palsies when alone or with the 7th nerve, there is generally a return to power in two or three weeks or longer. Third nerve paralysis and associated ocular paralysis usually persist longer than paralysis of the other cranial nerves. The probabilities are that most of the cranial nerve paralysis will ultimately disappear, although this is by no means certain. It was Dr. Weisenburg's impression that this epidemic as judged by the previous epidemics studied in 1910 and 1913 was of greater severity and that the extent of the paralysis was much greater.

Dr. Risley regretted that ophthalmoscopic study of the fundus oculi had not been made in the cases reported. In former epidemics he had seen two instances of optic atrophy with nearly complete blindness following what had been reported as poliomyelitis, and he knew of one case during the present epidemic which had been returned to its home paralyzed in the lower extremities and said to be blind, only mere perception of light having been retained when lying on its cot out on the lawn in bright daylight.

### A Case of Bilateral Intraocular Foreign Body. William Zentmayer.

The patient was a girl six years of age, who, two weeks before admission, had been injured by an exploding dynamite cartridge. She was brought to the hospital because of loss of vision in the left eye. No injury to the right eye was suspected. The skin in the periorbital region showed numerous small depressed scars similar to those seen after chicken pox. In the left eye the lens was partially opaque and the vitreous was filled with a dark mass in which there appeared to be a foreign body enmeshed. In the right eye there was a very small macule in the cornea at its lower outer margin. The lens was clear. In the vitreous there was a shining apparently metallic oblong foreign body about one-half the diameter of the disk in length and the diameter of a main trunk of the central vessel in diameter. The anterior pole was pointed to the temporal side. It was located in the horizontal meridian and was best seen with +4.D. In a line with the foreign body there was a small irregular whitish lesion in the retina. The radiograph showed on the left side numerous small foreign bodies scattered through the orbit and eye; on the right side there were two shadows. No response was obtained by application of the magnet to the sclera.

Dr. Zentmayer asked for an opinion as to the proper treatment of the case. He did not feel justified in attempting to remove the foreign body with forceps through a scleral wound as the eye was now in practically a normal condition aside from the presence of the foreign body. He thought the case should be watched and on the first appearance of irritation or synchysis an attempt at extraction should be made.

*DISCUSSION.*

Dr. Risley was of the opinion that if the metallic fragment hanging freely in the vitreous were not copper or brass, more injury was to be expected from attempts at removal than from the undisturbed retained body. He was glad to know that this was the opinion entertained by Dr. Zentmayer and by Dr. Sweet. He had had the opportunity to see Dr. Sweet's patient and was glad to hear from the report just given that the conclusion to do nothing but keep the case under observation had shown the wisdom of such course. He had seen many examples where foreign bodies in the vitreous chamber and in the lens had remained innocuous for many years.

### Herpes Zoster Ophthalmicus.

Dr. Burton Chance exhibited a man who has recently recovered from the active symptoms of Herpes Zoster

Ophthalmicus. In his experience this case presented the widest involvement in area. The dermal lesions extended from the lower orbital margin on the left side involving the lids, the lacrimal region of the nose, straight up over the forehead back to the inter-parietal line and over on to the temporozygomatic region. There was intense edema of the lids on the unaffected side. The ala of the nose was not affected. The conjunctiva was edematous from the beginning and an efflorescence at the inner and outer margins of the limbus occurred by the end of the tenth day, and later a localized cloudiness of the cornea developed. There was moderate iritis. There were no pareses of the extraocular muscles. The case has progressed favorably; the deep, rut-like scars on the forehead are becoming shallower, yet the man cannot wear his hat because of the excruciating anesthesia dolorosa, and so far, his quite thick head of hair has not been affected. A somewhat dense opacity in the interstitial lamina can be made out by means of the corneal magnifier. The medical treatment consisted chiefly of the use of hot magnesium sulphate stupes and the internal administration of sodium salicylate. Just before the vesicles ruptured, tincture of iodine was applied over the forehead and into the scalp.

Harold W. How, M. D.
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## WILLS HOSPITAL OPHTHALMIC SOCIETY.

November 14th, 1916. Philadelphia.

Dr. William Campbell Posey showed the following cases:

1. An unusually large mucocele of the frontal cells which had simulated an osteoma of the right orbit. Drainage had been effected by a long incision under the brow, perforation from the frontal cells into the nose, and the insertion of a large caliber drainage tube from the sinus into the nose. The development of the mucocele had been gradual over a period of nine years, had been unattended with pain or other inflammatory phenomena, and notwithstanding a high degree of downward and outward displacement of the globe, vision had not been lowered.

2. Prelacrimal tumor in a young colored woman, from enlargement and disease of the anterior ethmoidal cells. A cure had been effected by orbital incision and drainage of the cells into the nose by breaking through the ethmoid plate and

inserting a large drainage tube. Dr. Posey said it was his usual custom to close the orbital wound in cases of this nature, permitting the sinus to drain directly into the nose, but this rule had not been followed in either of the cases just referred to, on account of the great amount of mucous discharge in the first case and the amount of inflammatory reaction in the orbit in the second case.

3. A baby 8 months old with congenital ptosis and lack of upward rotation of the eyes, with associated marked dilatation of the veins in the skin of the upper lids, more especially on the left side. There were no vascular changes elsewhere about the eyes and nothing in the history which gave a clue to the origin of the venous swelling.

4. A case of monocular tubercular interstitial keratitis in a young girl, which had progressed most favorably under increasing doses of old tuberculin, administered hypodermatically.

5. A case of monocular interstitial keratitis in a young man apparently due to acquired syphilis. Marked improvement followed the use of mercurial inunctions.

6. A case of irido-cyclitis following perforating injury through the ciliary body by a stone. Enucleation advised.

7. Another similar case, the ciliary body having been perforated by a hat-pin.

8. A case of intense uveitis with corneal infiltration in an 11 years old girl with vaginitis of 3 months standing. The ocular involvement was thought to be due to metastasis.

9. Blepharoplasty in a girl aet. 22 years for the restoration of the upper lid, which had been lost from orbital inflammation in childhood. The flap which was taken from the forehead included a small portion of the brow, with the view to creating a row of cilia upon the new lid. A mucous lining was provided by carefully dissecting the small remnant of mucous membrane which was confluent with the skin underneath the brow, reflecting it downwards and sewing it temporarily to the lower lid. Union had been prompt and Dr. Posey said it was now his intention to remove the phthisical globe, to place a gold ball into Tenon's capsule, and later to insert an artificial eye. Naturally, the artificial cilia would not be tolerated by a healthy eye on account of the continued irritation to which they might give rise, but he thought a judicious penciling of the row of hairs fringing the flap might add considerably to the

setting of the artificial eye. He had deferred the removal of the phthisical eye until the new lid had been properly formed, on account of the support it gave the flap.

Dr. Zentmayer presented a Case of Congenital Anomaly of the Optic Nerve and Choroid. The patient was a woman 35 years of age, who stated that her vision had always been defective, especially in R. E.

In R. E. There were two large wing-shaped areas of defective choroid which spread out from the optic nerve to the temporal and nasal parts of the fundus. The defect in the choroid was complete. The papilla was oval and presented at the scleral ring on the temporal side a porous opticus through which the retinal vessels emerged. M.=8D.

In L. E. The choroidal defect was much less extensive and not complete, the choroidal vessels being present and showing, in places, sclerosis. M.=3D. The R. E. was divergent, but this had been almost corrected by an O'Connor advancement of the internal rectus.

### Case 1. Opacity of Both Lenses With Diabetes.

Dr. S. D. Risley presented for study a man aged 40 with an apparently soft and flocculent opacity of both lenses. When admitted to the wards ten days earlier, the opacity was complete and the lenses swollen, but projection was good in all parts of the field. While in the hospital the swelling had markedly subsided and much of the anterior cortex had cleared, leaving a clear space behind the border of the dilated pupils. He had been brought to the hospital by his physician, Dr. Lavas, for extraction of his cataracts, who reported that the man had been under his care for diabetes, but that the percentage of sugar had been so far reduced he believed an operation advisable. Examination, however, by the House Staff, revealed a high percentage of sugar and the urine had a sp. gr. of 1042. This had not diminished under treatment and restricted diet in the hospital. During the preceding twenty-four hours the man had passed two and a half gallons of urine of a sp. gr. 1036, with 8% sugar. The entire quantity was shown and the laboratory analysis by Dr. Brinkerhoff, the pathologist of the hospital, given as follows: "No acetone, diacetic or oxybutyric acid, no albumin or casts."

In answer to inquiry, Dr. Risley thought it possible that there might be some relationship between the obvious clearing of the anterior cortex of the lens and diminished swelling, and the evacuation of such an enormous quantity of sugar in the urine. The case stood alone in his experience, not only in the clearing of the lens cortex, but in the excessive amount of urine passed in twenty-four hours so heavily laden with sugar.

Regarding prognosis in the extraction of cataract in diabetic patients, Dr. Risley thought it on the whole favorable and reported that he had had four such patients in the house at the same time a few years ago, all of whom did well after extraction and pursued a quite normal convalescence. He felt it important, however, that diabetes should be regarded as a disease of impaired metabolism; that the uveal tract of the eye upon which the cataract depended was a local manifestation of the general disorder and should be treated accordingly. The case he had shown was the first in which he was ready to believe that the presence of sugar was primarily the cause of the opacity of the crystalline lens. The anterior ciliary vessels were not engorged, nor were there any other demonstrable symptoms of uveal disease.

### Case II.

Dr. S. D. Risley presented from the wards a bright girl aged seven years, assigned to his clinic on October 30, 1916, suffering from distressing photophobia and lachrymation in the left eye, the right being healthy with V=6/VI, T=20 mm. The tonometer reading in the left eye showed apparently 57 mm., +2, estimated by palpation. The cornea in both eyes was very large, but in the left the anterior sclera was apparently distended and showed the engorgement of the anterior ciliary vessels characteristic of increased tension of the globe. The eyes were not painful and there had been no headache. The condition was recent, the child having attended school in a grade beyond her age until three weeks before. On the cornea in the lower nasal quadrant, just below the corneal pole, there was a break in the epithelium presenting much the appearance of Dendritic Keratitis. The break was 1 mm. wide and 3½ mm. approximately long, extending from near the corneal pole downward and inward. There was what appeared as a deposit of discrete spots on the membrane of Descemet, but not so dense as to prevent a study of the fundus with the electric ophthalmoscope, which showed a deep glaucomatous cupping of the optic nerve and a choroidal disturbance increasing in severity at the periphery of the ophthalmoscopic field.

She received internally one grain of quinine sulphate four times daily, and locally an alkaline lotion and eserin salicylate four times daily. Two days later the photophobia had disappeared and the break in the corneal epithelium could be discovered only as a faint gray line by oblique illumination, but just above it, to the nasal side, a kidney shaped area 1 mm. by 2 mm. in size, seen only by favorable illumination, appeared to be an opening or break in the membrane of Descemet, which now appeared faintly gray around it, the discrete deposit upon its surface having disappeared. Dr. Risley regarded the case as one of buphthalmos or juvenile glaucoma. The right eye was healthy. The child was then admitted to the ward and the treatment continued with marked improvement in the ciliary engorgement, while the tension had fallen to normal, as estimated by palpation. Dr. Risley commented upon the untrustworthy reading of the Schiötz tonometer in such a case. The curvature of the much enlarged cornea did not conform to that of the instrument and therefore the spud could not be pressed home. On inquiry by a member of the Society, Dr. Risley said that he had advised a broad peripheral iridectomy which he purposed doing in the near future at a favorable stage of the disease, and felt that without an iridectomy his full duty would not be done to the case.

**Case of Purulent Ophthalmia With Vaginitis.**

Dr. S. D. Risley thought that since the infection of the eye had begun as a corneal ulcer, with subsequent involvement of the conjunctival sac, the infection was in all probability direct rather than metastatic.

Dr. S. D. Risley presented for study a patient for whom he had enucleated the left eye and inserted a gold globe in the capsule of Tenon. The point of interest was the technic of the procedure. After separating the conjunctiva from the globe, the tendon of each of the four recti was in turn seized through the conjunctiva and sub-conjunctival tissue in the grip of strong forceps, the tendon severed from its attachment to the globe and a deep stitch introduced and held back by an assistant. After enucleating the ball a gold globe was inserted and the sutures closely drawn and tied at the centre; a conformer was then introduced and bandaged. The only event of interest in the convalescence was a marked chemosis of the conjunctiva which disappeared after removal of the conformer. The result was a freely moving prominent stump instead of the empty socket usual after ordinary enucleation.

Dr. Risley exhibited also a man upon whom he had done a Mule's operation in 1898. He still had a perfectly healthy, freely movable stump. There was apparently no tendency for the escape of the glass ball, which had then been inserted, and no evidence of thinning of the sclerotic over it.

Dr. P. N. K. Schwenk reported the following case of supposed Glaucoma, on which he had done a posterior sclerotomy, iridectomy, lens extraction and capsulotomy with full restoration of vision with correcting glasses:

Mrs. M S., (colored), aged 50 years, came to Wills Hospital May 15, 1915, with the history that six weeks before she was confined to bed with "La Grippe," when she suddenly lost the sight of right eye, followed in two weeks by same condition in left. The patient presented the following on first visit:

Eyes slightly divergent O. S. orbital axis fixation, cornea clear, pupils slightly dilated, sluggish reaction to direct light, lenses cataractous whitish in appearance. Right eye—pericorneal zone deep scleral injection, vessels enlarged T. +2 no light projection or candle field, no fundus reflex.

I put patient off until conditions became necessary to relieve tension and pain. In consultation with Dr. Fisher, who advised posterior selerectomy, I admitted her to the wards of the hospital on May 29, 1915, and did a posterior sclerotomy on June 8, 1915, followed in two days later by an iridectomy—discharged her on June 29th with eserin and salicylates.

On October 12, 1915, I readmitted her and did a lens extraction on October 14, 1915. To our surprise she began having light projection and enlarged candle field. On October 29, 1915, I did a capsulotomy. Today the patient has 6/5 mostly with a +10.=1. cy. ax. 30″.

This case is instructive to me from two viewpoints: First—The case presenting all the evidences of glaucoma and hopeless as far as improvement of vision is concerned, but because of some pain with tension plus, was admitted to relieve these symptoms, which led to further indications to produce a clear field, or better study of the interior of the eye. The tendency or temptation was not to interfere, as the case seemed hopeless. The second point to lay stress on is the beneficial results obtained by posterior sclerotomy in a large percentage of cases in Glaucoma before doing the iridectomy. In three cases I have done sclerotomy, iridectomy and lens extraction at the same time. In my experience, posterior sclerotomy with iridectomy with upward incision, is the operation of choice. The Elliot operation should be performed only in cases of necessity or blind eyes.

Burton Chance presented, because of confusion in diagnosis, the case of a Negress of about 35, who had been under Dr. Fisher's care fifteen years ago, when beside symptoms of neuro-retinitis, there was proptosis, which proptosis it was then believed was caused by orbital tumor or cellulitis. The symptoms at that time were alarming, and the corneas, especially the right, became more or less necrosed by the exposure incident to the protrusion of the globes. Large doses of iodides were believed to have allayed the symptoms, and reduced the protrusion. The patient continued without symptoms until early in October of this year, when in addition to protrusion of the globes accompanied by immobility, there was enormous chemosis, and the patient was practically blind when she came under Chance's care. The chemosis was so great, and the corneas so cloudy that it was impossible to view the eye-grounds. There was a moderate yellowish conjunctival discharge. From October 17th until today, this discharge contained the pneumococcus organism abundantly, which could be demonstrated by smears and by cultures. Roentgenograms disclosed no involvement of the adjacent sinuses, and nothing indicative of neoplasms of the orbits were shown. Wassermann reactions were, repeatedly, negative. Today, the refraction, which is myopic, gave a quite high result at 4m. The discharge is now watery. The chemosis has entirely subsided and movements of the globes have returned. The treatment has been that of rest in bed, cold compresses, inunctions of iodide of mercury in ascending strength, over the entire period. Chance does not regard it to be a case of gumma of the orbit. It would be singular to have the two orbits affected alike, and to the same degree, and there should not, of necessity, be such chemosis accompanied by pneumococcic organisms. He therefore is inclined to the belief that he has had to deal with an extreme case of conjunctivitis complicated by infiltration of the orbital tissues.

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# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 7 West Madison street, Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

The Berlin ophthalmologist, Hirschberg, was made honorary member of the Berlin Medical Society on the recent fiftieth anniversary of his doctorate.

Dr. Frank Allport of Chicago was, on Dec. 13th, elected President of the Association of Chicago and Northwestern Railway Surgeons.

Dr. Claude W. Mitchell of Chicago has been made head of the department of physiology and pharmacology, in the School of Medicine of the University of Alabama.

The *Louisville Monthly Journal of Medicine and Surgery*, has changed its name to the *Mississippi Valley Medical Journal*, and will be the official organ of the Mississippi Valley Medical Association.

Dr. John McMullen, surgeon in charge of the trachoma investigations of the United States Public Health Service, addressed the National Committee for the Prevention of Blindness, at the N. Y. Academy of Medicine, on Nov. 24th.

The first issue of "The British Journal of Ophthalmology," which was mentioned last month, will appear with the New Year. The periodical, which will consist of at least sixty-four pages, will be published monthly, at an annual subscription price of £1 11s. 6d.

The White Brothers' hospital at Sand Springs, Okla., has just been opened for the reception of patients. The ocular department is on the ground floor of the building, and especially designed by eye specialists to meet the demands of this work.

The Indiana State Medical Association has passed a resolution asking the incoming legislature to appropriate money for erecting and thoroughly equipping a new medical college building for the Indiana University.

Mr. Louis R. Curtis, for over ten years superintendent and secretary of St. Luke's Hospital, has resigned to become president of the Frank S. Betz Company. Mr. Curtis during late years has been prominent as a consulting engineer among hospitals and has introduced many innovations in hospital construction and organization.

Mr. Joseph Leiter, former king of the Chicago wheat pit, while on the grounds of his hunting preserves recently, was struck in the eye by a reed, and for a time it was feared the sight of the eye might be lost. It is reported, however, that that danger has passed, and the vision is already much improved.

At the recent meeting of the Clinical Congress of Surgeons of North America, held at Philadelphia, a resolution was adopted forbidding its members from engaging in the practice of the division of fees under any guise whatsoever. Dr. John G. Clark of Philadelphia was elected president of the Congress and Dr. Franklin H. Martin of Chicago secretary. New York was chosen as the next meeting place.

The havoc wrought by the war has evolved a rubber eye for soldiers as a substitute for the old style artificial optic. A cast of liquid plaster is made of the orbital cavity, and from this is constructed an eye-ball, the face being of vulcanite. The posterior and lateral parts are made of soft rubber, there being a space between the anterior and posterior walls which is occupied by air, making the apparatus a pneumatic construction.

Lord Cromer, President of the Gordon Memorial College, Khartoum, has written a letter to the British Medical Journal, recommending the procuring of a fund to found a permanent memorial to the late Lord Kitchener in Khartoum. It has been decided that the memorial shall take the form of a school of medicine to be affiliated with the Wellcome Tropical Research Laboratories.

THE
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OF OPHTHALMOLOGY

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# IRIDOTASIS IN GLAUCOMA.*

BY
EDWARD STIEREN, M. D.,
PITTSBURGH, PA.

Iridotasis, literally, stretching the iris, is an operation devised by Dr. Johan Borthen[1] of Bergen, Norway, and is an improvement on Holth's operation, iridencleisis, which was designed to produce a fistulous opening between the anterior chamber and the subconjunctival lymph-channels by incarcerating a flap of the iris in the corneo-scleral incision and allowing the conjunctival flap to heal over it.

Borthen had operated twenty-six cases of glaucoma after the Holth method but says that he had always doubted the advisability of incising the iris and incarcerating a tongue of iris tissue. By an inclusion of a fold of the iris, so arranged that its posterior surface coalesces with the subconjunctival tissue, a position of the sphincter external to the corneo-scleral section is assured and with this, free drainage.

This modification of Borthen's has the distinct advantage over Holth's original operation in that it eliminates a difficult step of the operation, incision of the iris, which requires skilful technic and a certain amount of additional time.

Borthen compared his series of twenty-six cases operated upon after Holth's method with a series of fifty cases operated after his own method and is convinced that his simplified procedure is the better and that the incision of the iris, which was supposed to be of so much importance in the formation of a permanent fistula, has, on the contrary, the effect of diminishing the prospects of permanently reducing tension.

Holth described his operation in May, 1907, Borthen in July, 1911.

David Harrower of Worcester, Mass., was among the first to take it up in America having operated upon two patients after Borthen's method in the summer of 1912, making them the subject of a paper which he read before the American Ophthalmological Society in May, 1913. Two years later he reported seven additional cases before the same society, stating that the results were invariably so satisfactory that he had done no operation but iridotasis for chronic glaucoma since.

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*Read before the American Academy of Ophthalmology and Oto-Laryngology at its twenty-first annual meeting, Memphis, Tenn., December 11, 12, 13, 1916.

[1] Archives of Ophthalmology, Vol. XL, No. 4.

Dunbar Roy (Ophthalmic Record, March, 1916) reported nine successful operations and strongly recommends iridotasis, where no contraindications exist, for both acute and chronic glaucoma.

Verhoeff in discussing Harrower's second paper said, "I shall continue to use this procedure as a substitute for the trephine operation until I find some objection to it of which I am not at present aware."

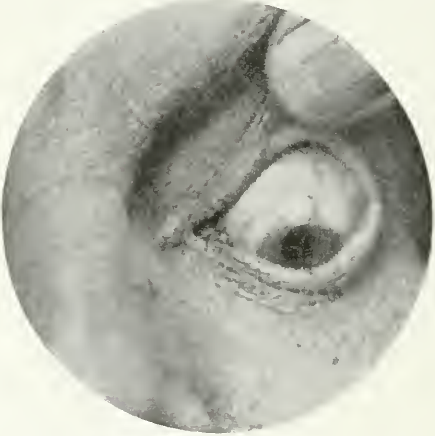

Fig. 1, Conjunctival Bleb after Iridotasis (Harrower)

Harrower in closing the discussion said he had received a communication from Dr. Borthen in which he said that he had done 206 operations after his method since the last report and that every one had been successful.

There appears to be only one contraindication to the operation and that is where the iris is so atrophic and friable that it cannot be drawn into the wound as it tears into shreds with each grasp of the iris forceps. I met such a condition once in the iris of a young myope with glaucoma.[2] Verhoeff[3] states that a similar condition of the iris obtained in a case of chronic glaucoma on whom a simple extraction had been performed years before and on whom he attempted iridotasis.

The operation is very simple. The eye is cocainized thoroughly and a conjunctival flap made as in the trephining operation. The flap need not be as large nor is it necessary to carry the dissection to the corneal layers, but the flap should contain all the subconjunctival tissue down to the sclera. A small keratome incision is then made under the conjunctival flap just behind the limbus and just large enough to admit the iris forceps. The pupillary edge of the iris is grasped and gently withdrawn and when released outside of the corneal incision it will be noticed that the under surface of the iris is now up. The conjunctival flap is stroked back into place and the speculum carefully removed, the operation requiring not more than five or six minutes to perform.

Borthen recommends that a drop of 1% Atropin be instilled into the eye a half hour before operation so as to prevent the iris falling back into the anterior chamber. This I feel is unnecessary if the corneal incision is small, not over 5 mm. in length.

The recovery from the operation is prompt. In 24 hours the conjunctival flap is attached and there is no need to keep the patient in bed longer. A distinct bleb forms which can be reduced by pressure with a flat instrument or through the lids.

The prompt relief from pain in the chronic blind eyes is almost miraculous. In the less advanced cases an immediate enlargement of the visual field is noted and, usually, central vision is likewise improved.

The prompt results following iridotasis are due equally as much to the stretching of the iris, thereby keeping open the filtration angle at this site, as to the subconjunctival drainage.

In this respect iridotasis differs from all other operations devised for the relief of increased intraocular tension.

I have performed the operation six times on four patients.

Case I. J. D. W., retired glass manufacturer, aged 66 when glaucoma was first noted, Feb. 23, 1915.

R. V. 6/8—, L. V. 6/16, each with + 2 D. Sph. Schiotz tonometer, R. 50 m.m., L. 57 m.m. Right field moderately contracted, left field markedly contracted, especially below.

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[2] Stieren, Glaucoma with Atrophy of the Iris. Penna. Med. Jour., Vol 18.

[3] Loc cit.

Both discs cupped, excavation of left extending to temporal edge of disc.

Physical examination by Dr. T. W. Grayson. Patient's height is 5 ft. 6 in., weight 208 pounds. Blood pressure, systolic 165, diastolic 110. Urine negative, bowels sluggish.

Eserin was ordered, habits and diet regulated.

March 15, 1915, R. V. 6/6—; L. V. 6/25. Right tension 40 mm. Left tension 46 mm.

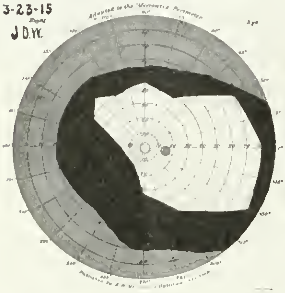

Fig. 2

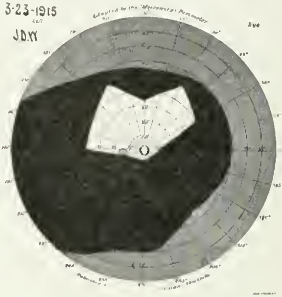

Fig. 3

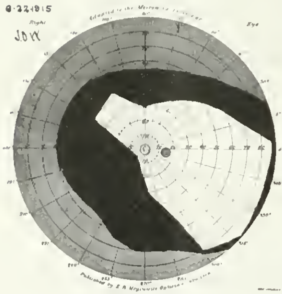

Fig. 4

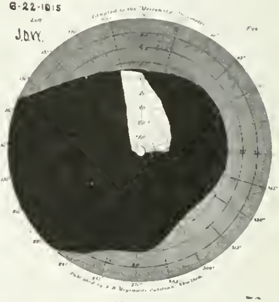

Fig. 5

June 22, 1915, vision remains the same in each eye but fields have narrowed. Right tension 35 mm. Left tension 47 mm. Eserin and pilocarpine with massage of eye-balls have been faithfully carried out.

July 13, 1915, iridotasis performed on left eye. The field immediately improved as illustrated in the chart. Vision gradually improved to 6/16 and has remained so.

Aug. 10, 1915. Right tension 38 mm. Left tension 24 mm. Within the next two months vision in the right eye had declined to 6/36—and the field had diminished steadily in size.

Oct. 21, 1915, iridotasis performed on the right eye, resulting in immediate enlargement of the field and increase in vision to 6/25. Tension 24 mm.

In speaking to Dr. Harrower of this case six months later in regard to the slight improvement in vision in the left eye he suggested that an iridotasis downward could do no harm, which accordingly was done May 26, 1916, but there has been no further improvement in vision although the field has enlarged following the second operation.

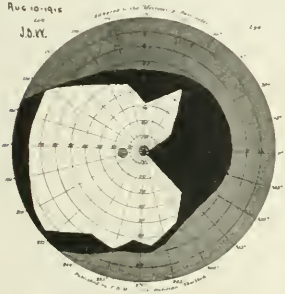

Fig. 6

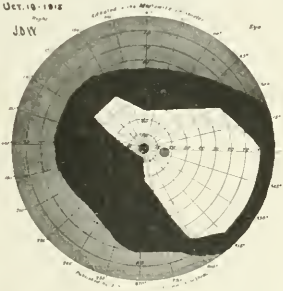

Fig. 7

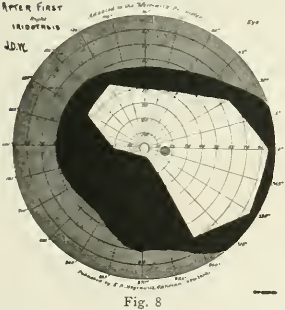

Fig. 8

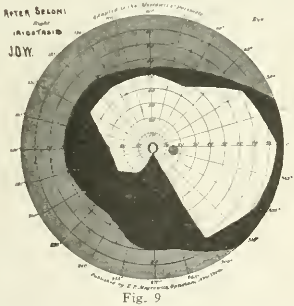

Fig. 9

The cornea, lens and media are beautifully clear in both eyes but there is an almost total excavation of both discs.

Vision in both eyes fluctuates between 6/20 and 6/16 and the fields are good. The patient plays a better than average game of golf; near vision is obviously limited.

Case II. Dr. C. B. K., retired physician, aged 76, Aug. 18, 1915, when acute glaucoma developed in the left eye. Pupil widely dilated, well marked circumcorneal injection, steamy cornea, tension 60 mm.

Physical examination by Dr. J. P. McKelvy. Height 5 ft. 8 in., weight 180 pounds, blood pressure, systolic 210, diastolic 95. Well marked arterio-sclerosis, slight albuminuria with hyaline casts.

Patient put to bed, diet regulated, therapeutic and hydrotherapeutic measures adopted to reduce blood pressure. Eserin and massage of eye-ball failed to relieve pain in the eye-ball and temple.

Iridotasis performed under cocaine Aug. 23, 1915. Patient experienced slight pain when the iris was grasped in the forceps. The operation was followed by complete relief from pain and there has been no recurrence since.

Nov. 1, 1916, tension 28 mm. Eye remains perfectly comfortable.

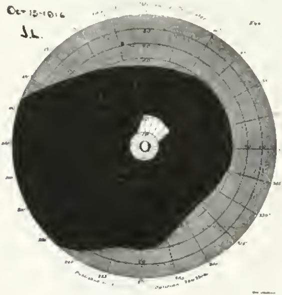

Fig. 10

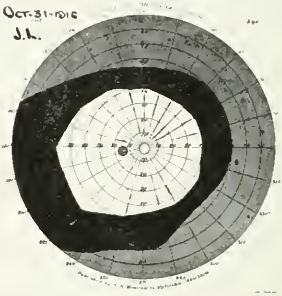

Fig. 11

Case III. Through the courtesy of my associate, Dr. Van Kirk, I saw D. J. C., aged 70, Oct. 23, 1916. He had had poor vision in the left eye for about two years. During the past summer had pain in this eye at various times and vision gradually failed to light perception.

When seen in consultation with Dr. Van Kirk the left pupil was widely dilated, cornea faintly hazy, marked circumcorneal injection, eye stony hard, no light perception. Pain in eye-ball was severe and radiated to temple. Blood pressure S. 310, D. 195. Weight of patient about 130 pounds. Marked arterio-sclerosis.

Eserin and dionin for twenty-four hours giving no relief, iridotasis was performed under cocaine.

Some pain was experienced when the iris was grasped with the forceps but the operation was successfully terminated. The glaucomatous pain was immediately relieved and has not recurred since.

Nov. 29, 1916, tension 26 mm. Light perception noted. Eye comfortable.

Case IV. From the Eye Clinic of the South Side Hospital.

J. L., aged 70 when first seen Oct. 13, 1916. Height five feet, weight 118 pounds, blood pressure, systolic 180, diastolic 125. The left pupil was widely dilated, cornea faintly clouded, slight pericorneal injection. Tension 50 mm. Vision 6/40—. Field very much constricted, as shown in chart.

Eserin ordered to which the iris promptly responded and the corneal haze cleared. No improvement however in vision or field. Eye painful at times.

Iridotasis was performed Oct. 24, 1916, followed by enlargement of the field in all meridians as illustrated in the chart and improvement in vision to 6/16+.

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## VISUAL FIELDS IN PELLAGRA.*

A Preliminary Report.

BY

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My reasons for presenting this subject to the Academy at this meeting are twofold; first to place on record my observations of certain changes in the visual field occurring in individuals having pellagra; second to invite the co-operation of the many Southern Ophthalmologists who will probably attend this meeting. They will have the opportunity to study the eyes of pellagrous patients, and we wish to have our observations confirmed. Personally I am convinced of the correctness of these findings, and I believe that there are definite changes in the visual field due to pellagra.

Roberts defined pellagra as "an endemic and epidemic disease, periodic and progressive in its course, and characterized by a series of symptoms involving chiefly the digestive, cutaneous and nervous systems." Its cause is unknown, and none of the many theories which have been advanced has stood the test of time. The suggestion that unripe or spoiled maize (Indian corn), or a onesided diet (carbohydrates) produce certain chemical toxines which are responsible for the symptoms has received the most favorable consideration.

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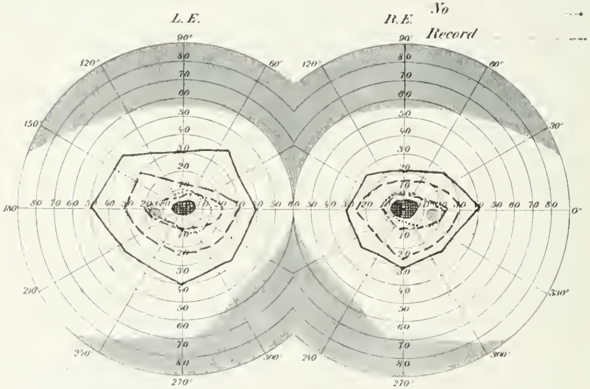
* Read before the American Academy of Ophthalmology and Oto-Larngology, Memphis, Tenn., December, 1916.

Regardless of the cause, I believe that most experts of the disease admit the existence of a toxaemia, and it is this fact which largely concerns the changes in the visual field which we have been able to detect.

In making these observations experience has taught us that only a small proportion of these cases could be examined on account of the lack of co-operation on the part of the patient. Often some little training was necessary and much patience was required with many of them. I used the ordinary perimeter of 33 cm. radius, and Schweigger's* 1 cm. test objects. When a scotoma was detected it was mapped out by Peter's hand campimeter.



Case 1.—Shows a peripheral contraction for form and color, with an absolute central scotoma for red, and relative for green in the right eye; and an absolute central scotoma for red and green and a relative for blue in the left eye.

Case I. Mrs. J. B. M., white, age 46, housewife, lives in suburbs of Atlanta. She consulted me April 8th, 1915, on account of defective sight of two months duration.

There is nothing of importance in the family history. Her health had been good all her life, except joint pains which she termed "rheumatism." She complained of indigestion and constipation. She had been married twenty-one years, having had six pregnancies, of which the first three were miscarriages. She had not menstruated in four months. She had not complained of sore mouth and tongue, but of extreme nervousness. She did not know that the skin on the dorsal surface of the hands and forearms was rough or brown. She was not addicted to the use of drugs, whiskey or tobacco. After my examination where I found amblyopia with scotoma, I referred the patient to Dr. S. Roberts for a general physical examination, who reported nothing abnormal except a mild atypical pellagra. The patient being well developed and presenting none of the pellagra symptoms with which I was familiar at that time (this being my first case) I admit that I was somewhat surprised at the diagnosis, but subsequent study of the disease and the associated eye changes convinced me of the correctness of the diagnosis. Urine negative; blood Wassermann negative. Examination of the nose and sinuses was also negative.

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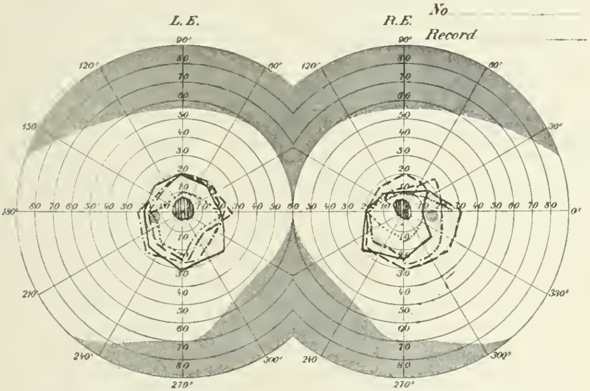
*Schweigger's test objects are 1cm. colors imbedded in the center of a black velvet square 4x4 cm. This black back-ground makes the colors appear more intense, and the moving of the velvet object on the arc is noiseless, which is of great advantage in examining these neurotic individuals.



Case 2.—Shows a marked contraction for form and an interlacing of colors. There is in each eye a central relative scotoma for blue and red.

Eye Examination. Vision right and left 20/200 unimproved. Ocular muscles normal; pupils round, equal and react to light and accommodation. The fundus showed a decided paleness of the discs in the papillo-macula bundle. Tension normal.

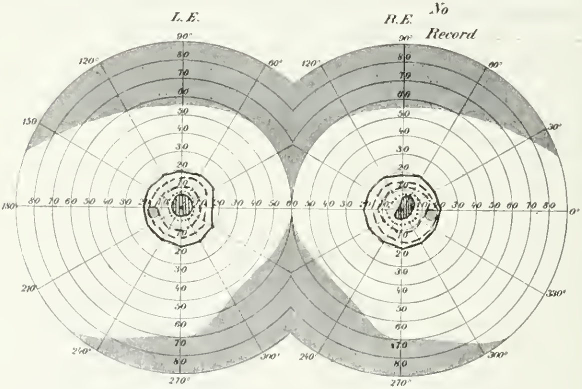
Fields. A decided contraction for form and colors. In the right eye there was an absolute central scotoma for red, and a relative scotoma for green. The left field showed an absolute central scotoma for red and green and a relative scotoma for blue. Blind spots normal.

Subsequent eye examinations have been made which show no relative change, except that the scotoma for all colors have become less absolute. The general health of the patient has improved and she has gained in weight.

Case II. Dr. R. W. B., white, age 46. Referred by Dr. J. C. Johnson for an eye examination.

Family history negative.

Past history. Had been in perfect health until 1901 when he had typhoid fever, and since then health bad. In 1910 had grippe. 1913 was much "rundown," but did not know cause of weakened condition. In August, 1914, developed severe attack of "biliousness," and could not eat for want of appetite. Lost twenty pounds in three months, which was regained, but general condition did not improve. In October, 1915, he lost thirty pounds, and in April an eruption appeared on his hands and wrists, at which time he first consulted his physician.



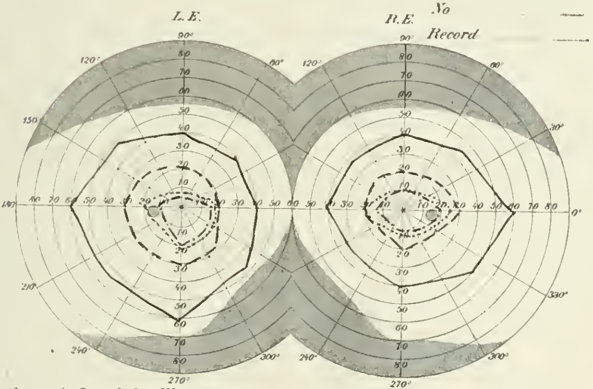
Case 3.—Presents a regular contraction for form and color which is almost tubular in character. There is in each eye a central relative scotoma for red and green.

He has never had diarrhoea or sore mouth. Does not use tobacco and rarely takes a drink of whiskey. Denies the use of any drug. A general physical and laboratory examination was made by Dr. Johnson who reported nothing definite, except a well defined case of pellagra. The nose and sinuses were negative.

Eye Examination. Vision right and left 20/15 with correction. Pupils, extraocular muscles and fundi normal. Fields, marked contraction for form and color, with a central relative scotoma for blue and red. Blind spots normal.

The next case was the most brilliant one of our series, for we were able to suspect the diagnosis of pellagra from the picture of the visual fields.

Case III. Mrs. S. C. A., age 26, white, housewife, residence Heflin, Alabama, seen June 20, 1916. The patient who complained of abdominal pains, a vaginal secretion, backache, headache, loss of weight and general nervousness was referred to Dr. W. S. Elkin for a pelvic operation. The examination did not reveal any abnormalities or changes which required surgery, but as the patient complained of headache and pains in the eyes I was asked to examine her.

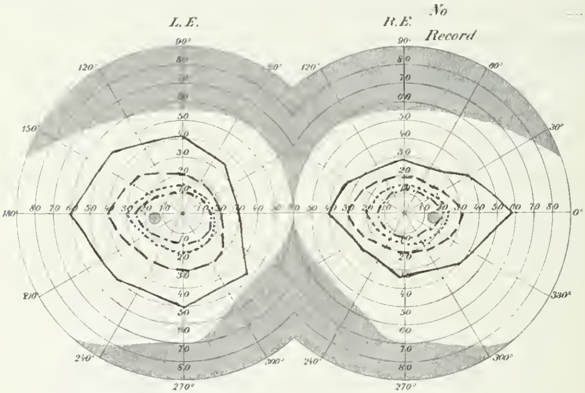


Cases 4, 5 and 6.—Illustrate typical fields in pellagra, where there is a contraction for form and color.

Eye Examination. Vision right and left 20/15. Extraocular muscles normal, pupils widely dilated, but contract to strong light. Fundus normal, except marked physiological cupping in the right eye. Tension normal.

Field. Marked contraction for form and colors, with a relative scotoma for red and green. From this examination I questioned the patient closely and soon learned that I could not obtain an accurate history from her, but it was definitely determined that she had lost considerable weight within the last few months and that her present nervous and mental state had alarmed the family. From a picture of the fields, pellagra was considered as a cause, and upon examining her hands and forearms I found a roughened and bronzed condition of the skin. Examinations were made by two competent internists, one unhesitatingly made the diagnosis of pellagra, the other would not so positively commit himself, without knowing the Wassermann reaction which could not be obtained. However he considered pellagra the most likely diagnosis.

In two other cases of pellagra, which subsequently died, I was able to demonstrate the same changes in the visual field, *i. e.,* a contraction for form and color and a scotoma for colors, but as there were other factors present, which could have produced a central scotoma for colors (tobacco, alcohol or morphine) they are for the present omitted from this series, as the diagnosis may properly be questioned.

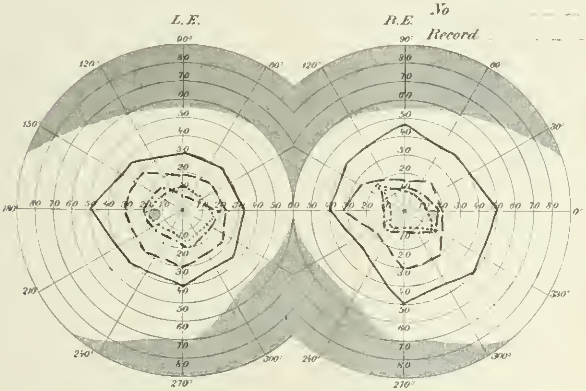


Case 5.

I could also demonstrate in three other cases of non-active pellagra (although two were inmates of the State Sanitarium for the Insane at Milledgeville) para or peri central scotomas for colors, besides the usual contractions for form and color.

In all I have examined about forty pellagrins in various stages. The visual fields could not be obtained of those who were confined to their beds in the last stages, although a fundus examination showed a decided pallor of the disc which might properly be called a mild atrophy. There were also others whose mentality was such that no co-operation could be obtained, and it would have been futile to have attempted perimetry study. However, in every case but one (the exception being a case that had been reported "cured" for three years) where a visual field was accurately taken, I have found more or less irregular contraction for form and colors, and in several instances an interlacing or displacement of colors, principally the reds and greens. Without presenting the histories and eye examinations which are unimportant, I attach the visual fields of three cases which are typical and illustrate what has been mentioned. Cases 4. 5 and 6.

Eye changes, such as asthenopic symptoms, circulatory changes in the retinal vessels and especially juvenile cataracts, have long been noted in pellagrins, and mention has been made of amblyopia, pale nerves and optic atrophy by various authors (Ottolenghi. Tucker and Procopui). I am not aware that changes in the visual field have before been recorded, although Whaley of S. C. gives as his experience that "all pellagrins are unresponsive and no field examination could be made."



Case 6.

What then is the explanation of these nerve changes? Before attempting an answer I should call your attention to the observations of Lorenz, in an article entitled "The Mental Manifestation of Pellagra" in which he compares the mental state of pellagrins with the toxic psychoses, of which alcoholism is a good example. Their resemblance he says is not clinical alone, but the character of degeneration found in the nerve cells of the brain are similar in both conditions. Dunlap found axonal degeneration of cortical nerve cells, which change has been similarly noted by Spiller in chronic alcoholism. Dunlap further says that "in the absence of a clinical history, we have no means of saying on pathological evidence alone whether a given case is one of pellagra or of central neuritis or of alcoholic psychosis." Whether the direct cause for the disturbed visual field lies in this alteration of the central nervous system involving the visual tracts or centers; or in a toxic alteration in the peripheral nerves, similar to a retro-bulbar neuritis produced by alcohol and tobacco, is a question which further study and investigation must solve.

In conclusion we believe that we can positively state from our investigation:

That in most cases of pellagra there is a contraction of the field of vision for form and color, with frequently an interlacing or misplacement of colors, especially the green and red; and

That in a relatively large proportion of the cases there is a scotoma for red and green and occasionally for all colors. These scotomatous areas do not necessarily occur in the typical or acute cases for in two patients we were able to detect these changes before a diagnosis of pellagra had been made.

[1] Roberts, Stewart R. "Pellagra," Mosby, pub. St. Louis, 1912.

[2] Ottolenghi, quoted by Marie. "Pellagra," English Trans. by Lavender & Babcock, 1910.

[3] Tucker, R. B., Jour. A. M. A. Vol. XVI., p. 249.

[4] Procopui, Geo. "La Pellagra," Paris, 1913.

[5] Whaley, E. M. "Eye Symptoms of Pellagra," Trans. Nat. Com. Pellagra, p. 229, Columbia, S. C., 1909.

[6] Lorenz, W. F. "Mental Manifestations of Pellagra," Pub. Health Report, Vol. 31, No. 5, p. 221, 1916.

[7] Dunlap, C. B. "Pathological Changes of the Nervous System in Pellagra," N. Y. State Hospital Com. Vol. 7, No. 4, page 488.

[8] Spiller, W. A., Amer. Journal Med. Science, January, 1911.

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# CONCERNING SUDDEN OBSTRUCTION TO THE RETINAL CIRCULATION IN A CASE OF CARDIO-RENAL DISEASE.

BY

G. ORAM RING, A. M., M. D.

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J. C., male, aged fifty-seven years, was referred to my service at the Episcopal Hospital, from the medical clinic of Dr. R. S. Hooker.

Family History. Father died of heart disease, mother and two brothers of unknown cause. One brother and two sisters living and well.

Previous History. Patient is a boilermaker by trade. Denies ever having been ill until two years ago. A regular user of tobacco since eleven years of age. Has been addicted to the use of alcohol in form of whiskey and beer from nineteen years of age until seven years ago, since which time he has been strictly temperate. He drank regularly and usually to excess on Saturday and Sunday. Denies venereal diseases, and applied for treatment at medical clinic on account of palpitation and dyspnea.

Present illness. Twenty-seven months ago while sitting at his work he found it impossible to elevate his arm above the shoulder. The attempt to do so was accompanied by slight circular movements of the hand. Upon attempting to rise an attack of vertigo came on accompanied by a sensation of pins and needles pricking his left arm, which was improved by rubbing. He immediately walked to a physician's office five blocks away and being sent to his home by automobile, found he could not get out of the machine unassisted, neither could he walk. Hemiplegia lasted but a brief time, and within three days he was able to walk with the aid of a cane which he used for several weeks. He is fairly nourished, has a hemiplegic gait upon the left side and holds arm in characteristic hemiplegic position.

Left arm and leg spastic. Reflexes: knee-jerks much increased on left; Babinski present; also ankle clonus on left side.

Heart enlarged to left. Mitral systolic murmur. Accentuated aortic second sound.

Urine shows specific gravity 1017; faint albumin ring, with hyaline and granular casts; no sugar.

Wassermann: negative.

Blood-pressure: September 14, 1915: systolic, 250; diastolic, 130. October: systolic, 220; diastolic, 120.

During July, 1914, one afternoon at four o'clock vision in left eye suddenly became foggy, and was reduced to distinguishing forms, but returned on following morning.

October 21, 1915. Had temporary loss of vision in right eye similar to that recorded in O. S. in July, with restoration of sight the next morning. Four days later he awoke to find vision in right eye gone and two days later was seen at the eye department of the Episcopal Hospital.

October 27. O. D. Neither light perception nor projection was present. Pupil semi-dilated and immobile to direct light stimulus but maintained a consensual reaction. The fundus was markedly edematous, some of the arteries being visible as slender cords, veins very small. The macular region shows markedly red through the haze, contrasting with the white of the remaining fundus and picturing the so-called embolism of the central artery.

O. S. Media clear, nerve of good color. The superior nasal artery just beyond the disk is contracted and the connective-tissue increase is plainly visible. The superior vein shows an indentation at the point of crossing. In the macular region above is a patch of infiltration bordered with a hemorrhage. The immediate area of the macula is infiltrated, and a disk diameter to temporal side is a flame-shaped hemorrhage. Entire fundus is diffusely hazy.

The following day the superior artery was seen as a white cord. The circulation terminating after its emergence from the disk center at a point about midway between the point of emergence and the upper disk border.

The inferior artery is obstructed at about the same point, and the artery traced as a white cord into the periphery. Between the nerve and macula the edema is marked, no details possible. The nerve is covered with dilated and slightly tortuous cilio-retinal vessels.

Twenty-four hours later the systolic blood-pressure had fallen to 200, the diastolic to 130. Pulse pressure therefore 70 and the following changes were noted: The superior artery in O. D. now shows as a series of broken red lines and the inferior artery runs into an edematous area below similar broken red lines.

On October 31, the superior artery is manifest as a continuous red line somewhat broadei and the inferior artery is filled both before and after leaving the edematous area. The artery to the nasal side is constricted at the point of emergence from the disk.

On November 2, both superior and inferior arteries were filled, the superior being contracted after leaving the disk and appearing as a thin red line.

The edema between the disk and the macula is clearing, a hemorrhage borders the vein, area of infiltration is evident in macular region with a deposit of cholesterin.

The latest note on November 16, in O. D., shows that the superior artery, after leaving the constriction which is above the nerve, runs into an edematous area and is lost in spots. At the point of crossing it indents the vein. The superior temporal branch is lost to a point near the macular region beyond which the terminal branches can be seen. The inferior temporal branch is constricted and a hemorrhage adjoins it in the macular region. Inferior artery runs into an area of edema and organized inflammatory tissue. Inferior nasal branch cannot be seen after leaving the nerve.

O. S. Superior temporal artery is constricted at nerve border with lipoid infiltrations along its course and with similar deposits in the macular region.

Superior nasal branch interrupted in its course, retina edematous. Blood pressure: Systolic, 190; diastolic, 110; pulse pressure, 80.

The phenomenon above described, particularly the condition noted at the first visit with the cherry-red spot at the macula, pointed to what is commonly known as embolism of the central artery. A number of possibilities of explanation of this red spot have been made; little hemorrhages, retinochoroiditis, yellow pigment of the macula, but that most usually now considered is that it is caused by the red of the choroid shining through the retina at the point where it is thin and the brilliancy is accentuated by a contrast of its surroundings, the cerebral layer of the retina in which the cloudiness is situated being absent at the macula.

By a true embolism we mean an occlusion produced by a plug driven into the artery.. It is now believed that this condition is extremely rare and that the changes noted probably result from thrombotic processes in the central artery excited by the degenerative changes in the walls. In other words that we are probably dealing with a proliferating endarteritis, in which the lumen is contracted by a progressive proliferation of the intima.

The restoration of the circulation is made possible by a retrogression of this process.

According to Kern no cause for an embolus can be found in 66.3 per cent of cases, so that a local disease in the artery is probable in the vast majority.

We are able to diagnose an endarteritis rather than an embolus when we are able to see the walls of the diseased vessels either just after the occlusion or at a later time.

According to the researches of Harms the diagnosis of a true embolism is justified only when we can exclude a primary disease of the wall, when a defect of the valves of the heart or some other plausible condition of disease can be demonstrated as its probable cause, and when signs indicative of a thrombotic occlusion of the artery are not present.

Arteriosclerosis is characterized by the occurrence of changes in and thickening of the intima which was supposed by Rokitansky to be due to the depositing of cells directly from the blood-stream, by Virchow to be a true inflammatory hyperplasia as the result of some so-called formative stimulus, and by Thoma to be a compensatory thickening of the wall in order to diminish the lumen of the vessel after the stretching which occurred under the increased blood-pressure with which it was usually associated. Jores, on the other hand, regards this as a true hyperplasia resulting from the high blood-pressure, but independent of the lumen of the vessel. Emphasis has been placed upon the intima with no reference to the important inflammatory changes in the media.

Koster lays special emphasis upon the importance of the degenerative and calcareous changes of the intima and adventitia as well, and believes the process is an infiltration in the adventitia surrounding the vasa vasorum like a sleeve and following the vasa vasorum into the media, and that there is almost always a demonstrable continuity between the patches of endarteritis, mesarteritis and periarteritis.

The vasomotor crisis of Pal, with sudden constriction and dilatation of the arteries in association with the organic changes in the vessel walls, furnishes a basis for the interesting changes noted in the comparatively prompt re-establishing of the blood-current in vessels that a few hours previously had the appearance of white cords.

Note.—I am indebted to Dr. Hooker for his notes regarding the systemic examination of the case, and to Dr. W. F. Hopkin, of my dispensary staff, for his care in recording changes which were the outcome of alterations of pressure.

2014 Chestnut Street.

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# COMPLETE, BILATERAL OPHTHALMOPLEGIA WITH CHOKED DISCS.

BY

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The following case is reported because of the severity of the eye symptoms, the restoration of vision to normal, and the rarity of complete, bilateral ophthalmoplegia with choked discs.

The patient was a shop girl, aged 18, of Russian parentage, seen by the writer for the first time on February 17, 1916, in consultation with her family physician. Dr. David Bercinsky. The complaint was that the patient had had "grippe" a few days previously and was unable to see, to open her eyes, or to move them when the eyelids were held apart.

Careful questioning elicited the following history of the immediate past and present. On December 25, 1915, the patient caught cold and was confined to the house for two days. On the third day she returned to work and seemed as well as usual in a short time. On February 8, 1916, she had a severe headache, a thing which was unusual to her, but continued at work in the factory. February 10th she was treated by a physician for this headache but obtained no relief. She was seen again on the 12th by the same physician because of the continued intensity of the pain. That evening she noticed some diminution in vision in the left eye. The next evening the vision fell in the right eye. On February 14th her attending physician recommended that she be sent to the hospital, but this advice was not followed. The same evening Dr. Bercinsky was called in and upon his suggestion the examination of the eyes was made.

The examination disclosed a fairly well-nourished young girl of slight build, lying apathetically with eyes closed. With considerable effort the patient was able to raise the eyelids, but her parents said that the day before she had been wholly unable to open them. The eyeballs were fixed in a straightforward stare. There was only the faintest motility in any direction. The pupils were widely dilated and reacted, if at all, only in the least possible degree to the light from an electric ophthalmoscope. Fundus examination revealed an intense swelling of both nerve heads, with no hemorrhages or exudates into the retina. The optic nerve fibers were swollen so that the disc projected approximately five dioptres into the vitreous in each eye. The veins were distended and at points where they bent around the enlarged discs entirely disappeared from view. There was no perception of motion or even of light in any part of the retinae so far as could be determined.

The patient was sent into New Haven Hospital within an hour, for observation and treatment. The temperature, which was 99.8 upon admission, fell to normal the next day and remained so until the patient was discharged. The urine examination showed sp. gr. 1.020, amber, slightly cloudy, acid reaction, slightest possible trace of albumen, no casts, w. b. c. or r. b. c. The blood examination gave 9,200 w. b. c., 45% polynuclears, 5% large mononuclears, 47% small mononuclears, 2% eosinophiles, 1% transitional. There was no anisocytosis, poikilocytosis, or plasmodia. The blood Wassermann gave slight inhibition, the spinal fluid negative. A provocative salvarsan was suggested but was not administered because of the entire absence of all specific history or manifestations. There was no nausea or vomiting at any time, the most prominent symptoms being the blindness and headache.

The general physical examination disclosed no significant findings. The throat was slightly congested, there was a little pyorrhea, pulse somewhat irregular. There was a soft systolic murmur and an accentuated second pulmonic sound. The lungs and abdomen were normal.

The neurological examination disclosed no paralysis of facial muscles. Deep reflexes in both upper extremities were present, equal but feeble. Plantar reflexes, feeble, knee jerks practically normal, Achilles jerks normal and equal, no Botenski, Gordon, Oppenheim or Chaddock signs. Abdominal reflexes lively, no marked rigidity, no Kernig's sign.

The nasal accessory sinuses were explored and no disease found.

The patient was kept in bed, cathartics given and ten drops of saturated solution of potassium iodide given three times a day. The improvement, which had begun before I saw the patient, continued steadily. The next day after her admission to the hospital, the left pupil had contracted slightly, and showed faint reaction to light. Motility of the extra-ocular muscles was beginning to return. Two days later there was less swelling of the optic discs, light perception had returned and motility was much increased. The patient was discharged from the hospital on the 28th of the month with pupils equal and reacting normally, vision sufficient to read an ordinary novel and motility of the globes normal. The patient continued under my care for several weeks until the eye condition was practically normal. The vision increased in both eyes to 20/20. There remains a considerable pallor of the nerve heads, more marked in the left. Color perception is normal and the patient is free from any symptoms, except an occasional headache.

A complete bilateral ophthalmoplegia with choked discs is certainly unusual, as is the rapidity with which the condition returned to normal. In reviewing the history of the case it seems that the most reasonable explanation of the eye findings is an inflammation of the meninges of the base of the brain, with pressure upon the nerves entering the orbit. This corresponds to the so-called serous meningitis. Whether this was due to the grippe germ is impossible to say but in view of the fact that we were in the midst of such an epidemic, this seems likely.

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# A NEW CATARACT KNIFE AND A KNIFE FOR DACRYORHINOSTOMY.

BY
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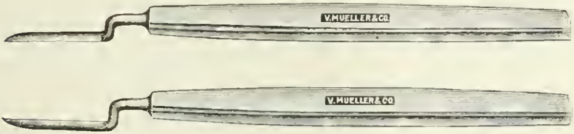
PROF. OPHTHALMOLOGY UNIVERSITY OF COLORADO, ETC.

A short time ago I performed two cataract operations where the eyes of the patients were so small and deeply seated that the greatest difficulty was experienced in making the corneal sections with a linear knife. I decided it would be the last time that I would be caught unprepared. I therefore had Mueller & Company of Chicago make for me the two knives here illustrated.



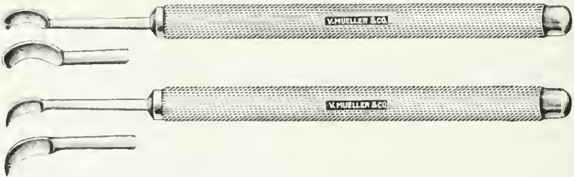
New Off-set Cataract Knives.

It is necessary to have one for the right and one for the left eye. The shank is strong and the offset blade is short. I find upon trying this knife upon pig's eyes that it is as easily handled as the regular linear knife. I believe it will prove a very satisfactory instrument in eyes that are deeply seated and hard to get at.

This second pair of knives may be called dacryorhinostomy knives. They are intended to be used to cut away the thin bony wall between the lacrimal sac and the nose and thus make it possible to cut this opening from the ocular side rather than from the nasal side.

The canaliculus should be fully slit into the lacrimal sac and my probe-pointed cataract knife introduced into the sac with the cutting edge of the blade lying in the slit canaliculus. A few sawing motions are made, thus cutting through the tissues at the brim of the sac. This will insure a free passage into the sac for the short-pointed dacryorhinostomy knife. The point of this knife is passed into the beginning of the bony duct with the handle of the knife lying in the direction of the slit canaliculus with the cutting edge down. The handle is then elevated and pressure made downward, backward and inward through the thin lacrimal bone into the nose. The opening through this wall should be made just large enough to admit the probe-pointed dacryorhinostomy knife. With this strong blade it will be found easy to cut away, with a circular sawing movement, all of the wall between the nose and the sac.

If it is not thought desirable to do the operation through the slit canaliculus an incision through the skin and tissues lying over the sac can be made and the knives used to cut away the nasolacrimal wall by that route. Such an incision should heal by first intention if a subcutaneous suture is used and no scar follow. Inasmuch as the canaliculus can thus be preserved and the naso-lacrimal wall more easily removed, this method may be deemed superior to the canaliculus route. The illustrations show the cataract knife full size with ends of handle cut off. The dacryorhinostomy knives are shown with the size of the full illustration reduced in size with an extra picture of the blade in full size.



Dacryorhinostomy Knives.

I wish to thank V. Mueller & Company, 1775 Ogden Avenue, Chicago, for so accurately carrying out my ideas in the making of these knives.

## CAMPIMETER VERSUS ARC PERIMETER.*

BY
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With increasing interest and an equally growing demand for careful studies of the visual fields, one naturally asks how are these studies best made and what mechanical device is best adapted to an accurate and at the same time expeditious method of routine investigation? Answers to this question undoubtedly will vary much. Each man who has made a careful study of perimetry has found most of the instruments at his command faulty in one or more particulars and has supplemented the long list of perimeters and campimeters with variations of his own to overcome what seem to him to be the greatest defects. Those who are not in the habit of doing routine perimetric work may be influenced by the equipment which they already possess and with the technique of which they are familiar. Their judgment, therefore, would naturally be preformed. A third difficulty arises from the fact that certain definite investigations are best conducted on an arc perimeter and others are unquestionably subjects for study on the tangent perimeter or campimeter. It is not the aim of the author to dogmatically answer these questions for every thinking man of the profession, but rather to present the reasons for his special preference.

Accuracy, practicality and simplicity of technique are the standards by which a perimeter or campimeter must be judged. Adaptability to a specific purpose is the first essential of any instrument, and the renewed interest in perimetry in recent years is due to the fact that precise and accurate information is obtained thereby. It is therefore of first importance that our instrument be accurate. If, however, the art of perimetry is to be practiced by all ophthalmologists, the questions of practicality and simplicity must receive due consideration. One of the greatest objections to the practice of perimetry, advanced by the rank and file of the profession, is the great amount of time required to make these studies of value. To many of our busy oculists this is a valid objection. One who would practice perimetry must necessarily be willing to give considerable of his time, which however, will be amply repaid.

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*Read before the American Academy of Ophthalmology and Oto-Laryngology, December, 1916.

Expedition therefore is an essential. Simplicity of technique may be added as a third factor in order to popularize so important a method of ophthalmic investigation. If the technique is easily mastered, expedition is assured.

**Accuracy.**

In the evolution of the modern arc perimeter, expedition and simplicity have been determining factors. In a roomy well illuminated office, the perimeter may also lay claim to accuracy in outlining the most peripheral normal, or nearly normal, form and color fields. Can the same be said of studies of the more important central field? I would not for a moment have the reader infer that the peripheral field studies are unimportant. In early pituitary disease, in simple noninflammatory glaucoma, and in many conditions, the detection of slight peripheral changes is of very great value for early diagnosis. It is significant, however, that ninety per cent of our field studies are made on well advanced pathologic cases with well defined alterations in form and color fields. The plotting of a normal form field is rarely necessary unless one wishes to do experimental work, and for such study the arc perimeter is best adapted. After years of study and practice, however, it is the writer's conviction that the tangent perimeter will admit of accurate study of the green, red and blue fields in the normal patient and that fairly accurate information can be obtained in an even very moderate contraction of a form field. If the vital question of illumination is taken into consideration, the greater ease of properly illuminating before an open window the flat surface of a tangent perimeter than that of a hollow sphere defined by the arc perimeter, the slight inaccuracies in extremely peripheral studies on the campimeter are more than balanced. In measuring normal fields, illumination for white is not so important a factor; in pathologic conditions, however, it is of paramount importance. (The illumination of the test object by electricity is to be condemned because the tests for light and color are by this method made at the same time and the results obtained are not the same as when color and light tests are made separately.)

The only claim of superiority of the perimeter over the campimeter therefore loses much of its value excepting in the study of a normal or nearly normal form field. Studies of real value are with few exceptions confined within the forty-fifth degree circle. Within this area the mechanical defects of the campimeter are a negligible quantity, and when the elasticity and flexibility of the campimeter are considered the objection to the tangent perimeter must of necessity disappear.

The arc perimeter may also be employed in determining very much contracted form and color fields, but in this it has no advantage over the campimeter. In studies of scotoma and the blind spot of Mariotte, however, it is valueless. Its inelasticity and inflexibility here become apparent. How many of you have made satisfactory studies of the blind spot on an arc perimeter? How many of you have felt satisfied with your studies of a small scotoma in the central zone? Have you been able to definitely study qualitative color changes in this central area, and have you been able to graphically outline the areas in which such changes have been noted? I need not answer these questions because every one who has done much perimetric work knows the great shortcomings of the arc perimeter.

It would neither be fair nor scientific to claim that the tangent perimeter or campimeter is without fault. The objection to the plotting of the most peripheral temporal field can never be overcome because of the inherent impossibility of approximating a flat surface to a curved surface. Within the forty-fifth degree circle, however, this objection is negligible.

I need not further comment on the great adaptability of the campimeter to a study of the blind spot of Mariotte, central scotoma and central color changes. The importance to the patient and physician of this central area as contrasted with peripheral changes is also equally apparent. Early cutting in the form field may be recognized on an arc perimeter, but an equally early cutting will be noted in the colors, and this color shrinkage can be outlined more satisfactorily on a tangent perimeter. In fact, if an early evidence of field change is sought, it will with few exceptions be found primarily in the color fields. In so far as accuracy is concerned, therefore, the campimeter must be the instrument of choice.

**Practicality and Simplicity of Technique.**

In order to make any method of study popular and to secure its adoption by the rank and file of the profession, such method must be rapid and easily acquired. It has always been the writer's contention that perimetric studies require much time and patience,—apparently a sacrifice on the part of the busy oculist. The results obtained, however, not only justify this apparent loss of time and energy, but in many instances really demand it. It is essential that we reduce the time limit for such studies to a minimum and this is accomplished by simplicity of technique.

Measuring the relative value of the campimeter and arc perimeter by this standard, we are again forced to a preference for a suitable campimeter. Few offices are sufficiently roomy and well lighted to allow the permanent placing of an arc perimeter in a well illuminated and convenient location. It usually means that the instrument must be moved into place for each examination. Furthermore, if the examination is limited to the defining of the peripheral field the work can be done expeditiously on an arc perimeter. Our work, however, is far from being complete with these measurements alone. The silhouette method of plotting the visual field is correct so far as it goes, but it tells the observer nothing as to the process which may be in active progress in the central field,—information which has definite localizing value which in disease of the retina and choroid or in the transmitting neuron in a definite part of the visual path. The boundaries of the projected field are necessary, but an analysis of the character of the preserved field is equally important. We need a photographic view of the field which not only outlines the most peripheral boundaries but also reveals its character,—its perfections and imperfections alike. A search for scotomata and the outlining of the blind spot may be imperfectly performed on the arc perimeter, but even inaccurate results can be obtained only after a long and tiresome search, exhausting to the patient and physician. Because of this difficulty, proper examination for central field changes will be abandoned if the arc perimeter is employed and a silhouette field will be the result.

The question of the size of the large blackboard or tangent perimeter may also be raised by physicians whose offices are not overly large and well lighted. The writer has solved the problem for himself by devising his "hand campimeter" which is now being generally exploited throughout the country. This instrument is small, light in construction, easily held in one hand by the patient, and admits of rapid and easy study before a window after the technique is once mastered. On it complete studies may be made of the entire field with the exception of the most peripheral temporal and inferior form field in a normal case. It does not lend itself readily to a study of tubular fields. With these two exceptions it covers the whole range of perimetric investigations rapidly and with accurate results.

To the writer therefore the arc perimeter in its present form is an obsolete instrument, possessing no real value which may not also be found in a campimeter, and wholly incomparable to the flexibility and elasticity of the campimeter for central field investigations. To some this statement may sound rash and unjustifiable. To those, however, who have given much thought and study to perimetry and *who have actually spent much time in its practice,* it will stand as a concise summary of the relative merits of tangent and arc perimeters. The campimeter is not all that we could wish for in some lines of study, but even in its as-yet-incomplete form it possesses so many advantages over the arc perimeter that the latter instrument may very appropriately be regarded as an office ornament rather than an instrument of much practical value in perimetric work.

1527 Spruce St.

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# A METHOD OF OPERATION IN COMPLETE OBLITERATION OF THE ANTERIOR CHAMBER WITH REPORT OF A CASE OF CORNEAL STAPHYLOMA.*

BY

C. G. DARLING, M. D.

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When the anterior chamber is completely obliterated, especially when there is only a rim of two or three millimeters of sound cornea around the limbus, an iridectomy by most methods is usually very difficult to perform. This is doubly so if the lens is still present and one does not wish to remove or injure it.

I have seen the operation done of passing a knife through cornea and iris into the vitreous and bringing it out again a few millimeters away in the cornea and completing the incision as in cataract; the lens if present is removed and the iridectomy done by catching the iris on its posterior surface with the iris forceps, (Deschamps operation) but this does not always remove the iris root and establish drainage, and iridectomy is not always possible.

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*Read before the Chicago Ophthalmological Society, December 18, 1916.

Major Smith's method can be used to advantage if there are the slightest remains of an anterior chamber, but with the iris atrophic and adherent to the cornea, I do not believe the operation would be successful in many cases.

This past summer I did an iridectomy in a case of corneal staphyloma by making a very minute opening into the anterior chamber well back in the corneal limbus with a keratome, using sawing movements; this was enlarged as soon as I entered the anterior chamber, with probe-pointed scissors; a spatula was passed between iris and cornea to free the iris before introducing the iris forceps. In this case I obtained an almost immediate as well as permanent flattening of the staphyloma and normal tension. Later when looking up the literature of this subject I found this operation was similar to Gayet's method.

A short time ago a man entered my service at the County Hospital with a serpent ulcer of ten days' standing. Only a two or three millimeter margin of the cornea was left after perforation and healing.

A large staphyloma of the cornea was forming under the continuous use of a pressure bandage; the tension would rise, a fistula would form, this would close and tension go up again with increase in size of staphyloma; then the process would go through the same cycle again. The lens was still present in the eye.

Here the iris was very much stretched, thin and adherent to the corneal rim, only 2 or 3 mm. from the limbus, so I did not feel I had enough room in which to do any of the operations of which I have spoken, or that any of them would open the iris angle as the iris was probably adherent at the angle, and would remain so after ordinary iridectomy as the iris would tear before freeing the angle.

An iridectomy was done in this case in the following manner.

Heine's cyclodialysis operation was done opposite the widest area of sound corneal rim.

The spatula when in the anterior chamber separated the iris from the cornea; it was passed forward until the iris was somewhat torn from the corneal rim, (the spatula being well curved so that it hugged the back of the cornea).

With the point of a keratome using sawing movements the spatula was cut down upon well back in the limbus so that the cornea would be left untouched and the iridectomy would be well to the root of the iris to give good drainage.

This incision was enlarged with scissors but I believe a canaliculus knife if very sharp would have been better, as I do not think it would cause as much trauma.

The iris forceps were now introduced, the spatula removed, and an iridectomy of about 3 mm. wide was made at the first attempt. Wishing to make the iridectomy wider I had to reintroduce the spatula to get the iris forceps between the iris and cornea; this was done on one side and then the other of the primary attempt, giving an iridectomy of over 10 mm. wide well back at the root of the iris.

This operation has caused some flattening of the cornea, decrease in tension, and a little vision, which is now hand-movements.

The cornea in this case was so extremely thin that any tension above a negative one would cause some bulging, so another iridectomy was attempted on the opposite side of the cornea four days ago. On this side the iris had been more stretched and was very thin and atrophic so that a piece of it would tear out whenever taken hold of; here I passed the spatula forward and freed the iris from the corneal rim for about one-third of its circumference and the iris is of course freed from the cornea at its root, at the same time; this freeing of the iris should act fully as well as iridectomy in establishing an anterior chamber and drainage, although I would at first attempt iridectomy. I saw the case today and the cornea is of normal regular curve. I believe the vision will improve still more as the corneal rim which is still very cloudy should clear quite a little.

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T. B. Holloway recently reported to the College of Physicians of Philadelphia an interesting case of dazzling, in an aviator. The subject of photo-traumatism will be of increasing interest to American ophthalmologists as more men apply for this new field of work. The editor of this department has had the opportunity of examining the eyes of quite a number of aviators recently, and from their experiences it is rare to find one who suffers from this form of eye irritation, even when the eyes are unprotected with goggles.

# REPORTS OF SOCIETIES

## PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

DR. S. LEWIS ZIEGLER, CHAIRMAN.

October 19, 1916.

### Orbital Tumor.

Dr. Wm. Campbell Posey exhibited a case of orbital tumor, possibly an osteoma, growing from the roof of the right orbit. The patient, a male, age nineteen years, denied traumatism or other probable cause to account for the origin of the neoplasm. The growth first manifested itself in a drooping of the lid about eight or nine years previously, the swelling in the orbit coming on several years later. At first double vision was present, but after several months this troublesome symptom disappeared. The patient had always enjoyed excellent health and his family antecedents were good. Examination revealed a marked disfigurement of the face. The forehead is very prominent, this being especially marked on the right side. The right eye was much lower than its fellow and somewhat proptosed. Palpation revealed a hard mass just below and confluent with the supra-orbital rim of the right orbit. The mass was slightly bosselated and did not pit on the firmest pressure. It merged with the inner wall of the orbit, and its external border, which presented the same characteristics as the body of the mass, terminated just within the outer margin of the brow. The upper lid partially covered the right eye and could not be raised voluntarily. Upward motion of the globe was also lost, though the other movements were unimpeded. The fundus was healthy, the optic nerve showing no alterations. Uncorrected vision equaled 5/10 in the right eye and 5/5 in the left. There were no signs of inflammation about the eye or orbit, and the patient asserted that this had been the case since the growth was first noticed. At no time had he suffered any pain. As the patient had only presented himself on the afternoon of his exhibition before the Section, there had been no opportunity for X-ray or other studies. Dr. Posey thought the growth, in all probability, was an osteoma, and said that he proposed to extirpate it through a large incision under the brow.

### Unusual Form of Retinal Degeneration.

Dr. William Zentmayer presented the case of A. B., a girl, aged nine years, who was sent to Wills Hospital because of poor vision which could not be improved by glasses. V. each eye=6/60.

The ophthalmoscope showed in each eye, throughout the retina but much more marked along the course of the temporal vessels and in the macula region, disciform yellowish-white lesions averaging in size about 1/3 d.d. Along the vessels they were discrete, but in the macular region they were confluent. both nerve heads showed a low-grade optic atrophy. The child was well nourished, of good mentality. There was neither consanguinity nor heredity. v. Pirquet test was negative. Wassermann positive. The visual fields showed moderate concentric contraction.

### Three Cases of Ocular Injury.

Dr. Howard F. Hansell reported briefly the history of three cases of traumatism that presented unusual features:

Case I.—This was the case of a young man who was employed in the powder works at Hopewell, Va. He, in company with an older man, was approaching a large cylinder in the second-story room of one of the factories. As they came within a few feet of it there was a violent explosion, and together they were blown out through a door and over a railing and landed on the ground. The older man died within an hour. Of seven men who had been working in the room three were killed. The wall of the building was partly wrecked by the pieces of the exploded cylinder.

My patient believed his eyes were blown out. He was treated for two days in the hospital at Hopewell and then brought to Philadelphia and admitted to the Jefferson Hospital. He had intense photophobia; he was nervous and apprehensive, and feared permanent blindness. To my astonishment I found his eyes to be absolutely uninjured and not a bone in his body broken. He left the hospital and resumed his work the next day.

Case II.—R. was struck in the left eye with a wad of paper thrown with force by a fellow workman. He noticed a few days later declining vision without pain or signs of inflammation. The ophthalmoscope showed a patch of retinochoroiditis twice the size of the disk and fine dense vitreous opacities. In his case neither of the usual traumatic lesions—namely, dislocation of the lens or rupture of the choroid—were present. Under active diaphoresis vision improved to 20/30, the chorioretinal patch diminished to one-half its previous size, and the opacities in the vitreous were partly absorbed.

Case III.—A physician about to operate received a splash of chloroform in each eye. For two days he was able to continue his professional work but at the end of that time intense pain commenced and continued without interruption for thirty-six hours. Sleep was possible only after the administration of large doses of morphia. Three days later he was admitted to the Jefferson Hospital after a painful journey of twenty-four hours. Both corneae were superficially infiltrated and a part of the epithelium destroyed. The conjunctivæ were intensely inflamed. The palpebral surface of each upper lid presented the appearance of subacute trachoma. The subconjunctival tissue was irregularly and unequally infiltrated with fluid and solid exudation as though the conjunctiva was granular. Bacteriological examination was negative. Under soothing local and general treatment he recovered perfectly in a few days.

**Eskimo Snow Blindness and Goggles.**

Dr. Judson Daland (by invitation) stated that among approximately 3,000 Eskimos living on the coast of Alaska, Siberia and the Islands of the Bering Sea and Arctic Ocean, the common ocular diseases were conjunctivitis, cataract, trachoma and snow-blindness. Notwithstanding the belief of certain authors that the Eskimo possesses relative immunity from snow-blindness, observations show that they are as susceptible as the Caucasian, and that one attack predisposes to another. Experience has taught them the necessity of protection from snow-blindness; and necessity caused the invention of snow goggles made of wood. The Eskimo recognizes that snow-blindness occurs, not only on sunny but also on cloudy days, and he therefore insists upon the importance of wearing goggles on cloudy days.

Conjunctivitis and snow-blindness are usually associated with corneal erosions, choroiditis and retinitis.

The ultraviolet rays cause conjunctivitis, corneal erosions and possibly chorioretinitis.

Snow-blindness occurs in animals.

Dr. Posey said that he was under the impression that Peary had worn smoked glasses on his trip to the Pole, and that Shackleton had employed Euphos lenses. He had never seen a case of snow-blindness himself, but related an experience of his own while mountaineering at a height of over 10,000 feet in a thick fog, when both he and two comrades were startled by perceiving numerous white and colored spots dancing before their eyes and projected upon the clouds which surrounded them. He had thought at first that the appearance might have been due, at least in one of his companions who had a rather weak heart, to circulatory disturbances, from the altitude and strain of climbing, but as he himself and his other friend had never suffered from any such complications, he became convinced that the visual phenomena must have been attributable to causes which he could not explain.

### Mikulicz's Disease.

Dr. Posey also reported and showed a photograph of a case of Mikulicz's disease. The patient, a married colored woman, aged twenty-one years, stated that she had first noticed a swelling of the right half of the face a year previously, the swelling in the lids appearing three months subsequently. No other morbid phenomena presented themselves, though the swelling in the lids had slowly increased until the present time. She averred that with the exception of an attack of rheumatism in the left elbow five years previously, she had always had good health. Although venereal taint was denied, Wassermann equalled +3. Examination showed characteristic swelling of lids, occasioned by the much enlarged lachrymal glands. Both parotid glands also enlarged, more so on the right side. Right pre-auricular gland palpable. Both submaxillary glands slightly enlarged. Epitrochlear and inguinal glands of right side palpable. Physical examination otherwise negative, with the exception of decay of three molar teeth. With the exception of some restriction in motion upward in each eye, the eyeballs themselves were unaffected. Dr. Posey stated that the strongly positive Wassermann suggested syphilis as the causal element, and it was his intention to begin a course of mercury at once.

J. Milton Griscom, M. D., Clerk.

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## PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

DR. S. LEWIS ZEIGLER, CHAIRMAN.

April 20, 1916.

### A Case of Microphthalmos With Orbital Cyst.

Dr. William Zentmayer presented the case of E. R., aged seventeen years. He was born with the present condition of the left eye, except that the swelling about the eye has increased since the twelfth year. No other member of family was similarly affected.

There was a swelling of the lower lid, with ectropion. A tumor mass could be felt through the lid about the size of a small walnut, and apparently globular. It seemed to be anchored toward the temporal side and was but slightly movable. There was ectropion of the lower lid of such a degree that the cul-de-sac was obliterated. The conjunctiva was thickened. In the upper inner portion of the orbit there was a small rudimentary globe. The cornea was about 4 mm. in diameter. The globe had limited movement in all directions but downward. X-rays did not show the cyst. In O. D. there was a partial coloboma of the optic nerve. The excavation involved all but a narrow rim of the papilla above, and at the lower margin the inferior artery and vein emerged through a narrow bridge of glial tissue. The vessels entered the disk at the upper inner third. The bottom of the excavation was —3D. Fundus level slightly H. Since the case was exhibited it has been operated upon and the diagnosis confirmed.

### Neuroretinitis Following Removal of Thyroid Gland.

Dr. Frederick Krauss presented a case of bilateral neuroretinitis following the removal of a goitre from a twenty-four-year-old man. The patient claimed to have had perfect vision and good health previous to the operation. He had failure of vision and symptoms of tetany several days after the operation. It has been three months since the operation. There was marked choking of the disk, the swelling in the right eye being +4D., and in the left eye +5D. There was no hemorrhages. The vision was normal in the right eye and nearly so in the left. The field for white was heavily cut in both eyes, the color field only slightly cut. The patient was very nervous, irritable, and depressed on account of transient attacks of amblyopia. He improved considerably after the administration of thyroid extract, showing the toxic nature of the lesion.

*DISCUSSION:*

Dr. de Schweinitz, discussing Dr. Krauss's case, inquired in regard to the character of the periods of temporary amblyopia, and referred to this important sign of increased intracranial tension in brain tumor, due to the pressure of a distended ventricle upon the underlying chiasm.

Dr. Holloway stated that he felt sure Dr. Krauss must have considered the possibility of the operation interfering with the equilibrium of the internal secretions. He thought this etiological factor should be borne in mind, especially when we consider the intimate relation existing between the thyroid and the pituitary body, and the relation between the thyroid and the pancreas and adrenals. Still further, a functional relation existing between the parathyroids and thyroids and the kidneys has been shown experimentally.

### Ligation of the Ophthalmic Vein for Exophthalmos.

Dr. Frederick Krauss exhibited a patient who had been operated successfully for exophthalmos due to orbital aneurysm. The primary operation had been ligation of the ophthalmic vein by the supra-orbital route. The pulsation and bruit then disappeared for two weeks, following which there was recurrence of the pulsations up and in from its former location. The exophthalmos was diminished markedly.

There were frequent attacks of bleeding from a small sinus in the upper inner angle of the orbit, apparently occurring and stopping without cause, for which the common carotid was tied.

The blood-pressure was reduced from 215 mm. to 150 mm., probably due to the bleeding. There were no complications. The exophthalmos had disappeared, and there was no pulsation or bruit. The ocular movements were good.

### Disseminated Choroiditis.

Dr. T. B. Holloway exhibited a boy, aged thirteen years, who was first seen in Dr. de Schweinitz's service at the University Hospital on March 13, 1916, at which time his eyes showed the following conditions:

The vision of the right eye was 6/12 and of the left 6/15. In the right eye there were a few vitreous opacities, the disk, of rather mellow appearance, was pinkish yellow in tint. Studding the choroid were innumerable lesions, varying in size from a split pea to a half the disk diameter. Many of these presented a grayish-white, cotton-like appearance, and were surmounted centrally or eccentrically by a ring of pigment having an apparent diameter of about 4 mm., the circumference of the lesion not being pigmented. In a few instances the pigmentation consisted of a solid clump about the same size as the rings. Some of the lesions were of a yellowish tint, and one near the macula was without pigmentation, whitish in color, and surrounded by a narrow yellowish areola. In a few instances the retinal vessels were partially covered by pigment. In the left eye there were a few vitreous opacities, with a low-grade neuritis, a diffuse superficial retinochoroiditis, most perceptible in the macular region, and in the periphery there were a few vague choroidal foci without pigmentation. General examination revealed slight enlargement of the cervical lymph glands, some enlargement of the tonsils, and a suggestion of a rachitic rosary. The Wassermann test was positive.

Dr. Holloway stated that he had never seen a case before quite as striking as the one under discussion. He believed the condition presented various stages of an active process depending upon hereditary lues.

**Pulsation of the Retinal Arteries.**

Dr. T. B. Holloway stated that the two patients showing pulsation of the retinal arteries from cardiac and vascular disease were exhibited because he thought that ophthalmologists saw fewer instances of this phenomenon than was commonly believed. He stated this condition could be beautifully studied by means of the Gullstrand ophthalmoscope, as was done in one of these patients. He referred to the various conditions under which pulsation of the retinal arteries could be observed, as described by Parsons and Gowers.

The first case had been referred to Dr. Sinkler's clinic at the Orthopædic Hospital and Infirmary for Nervous Diseases by Dr. Hooker. There existed an aneurysm and a double aortic murmur as well as a left-sided hemiplegia. The Wassermann test was positive. The second patient was a young girl who came under observation in Dr. de Schweinitz's service at the University Hospital, and had mitral and aortic disease dependent upon rheumatism.

Dr. Zentmayer said that sometimes it was very difficult to be sure of the presence of an arterial pulse. Haab points out that it is important that the patient, the ophthalmoscope, and the observer's eye be absolutely steady, as the gentle pulsatory movement of the patient's body or in the arm of the observer may imitate a slight pulsation. He advises that the patient be seated with the arms upon a table and that the surgeon also have a rest for his arm. He thinks that through the medium of "autosuggestion" there is also danger of seeing pulsation when it is not present. Dr. Zentmayer recalled a case seen in consultation in which a pinpoint corneal opacity gave rise to the impression of an arterial pulse. The slightest movement of the mirror brought the artery alternately into view or obscured it, and it was only after careful study that the explanation of the phenomenon was reached.

In closing, Dr. Holloway stated that the phenomenon that Dr. Zentmayer referred to was observed in the first patient, and when examined it had been necessary for him to support the arm, as for some reason there had been a distinct diminution in the amount of pulsation. He regretted to say that he had not examined the cornea with a loupe for a possible faint nebula.

### Extensive Epithelioma of the Lids Treated by Curettement and Radium.

Dr. T. B. Holloway exhibited an Italian, aged about fifty years, who was first seen at the Polyclinic Hospital on March 25, 1915. The patient had a large epithelioma about the internal canthus, involving the inner portion of both lids. It began as a small papule on the lower lid four years before, and had not received treatment for three years. Beginning at the middle of the lower lid there was an ulcerating area, the size of a five-cent piece, that extended inward to the inner canthus. A somewhat similar but smaller area involved the inner portion of the upper lid, the two being connected by a narrower tract extending deeply at the internal canthus, involving the lacrimal sac. From the inner margin of the lower lid a flap-like mass of epitheliomatous tissue extended upward, partially covering the inner portion of the globe. The patient was not seen again until four weeks later, when the lesion had much enlarged, and at which time he consented to operation. An extensive curettement of the whole epitheliomatous area was done, necessitating deep excavation into the orbit. After the application of pure carbolic acid a moist dressing was applied. The result of this was most satisfactory, the upper area filling in with a barely perceptible scar. Three months later a recurrence at the lower orbital margin necessitated another curettement, and owing to a recurrence at the outer portion of the lower lid a third curettement was done on February 23. Since the second operation three applications of radium have been made by Dr. Pancoast, with little or no reaction and very satisfactory results. At the present time the eye is quiet, and only about 5 mm. of the outer extremity of the lower lid remains.

Dr. Zentmayer said that in his experience the result obtained from the "desiccation treatment," as done by Dr. W. L. Clark, had been so satisfactory from every point of view that other methods of treatment, including plastic operation, had been abandoned except when the destruction of tissue was extensive at the time the case was first seen. He believed his experience was in agreement with that of his colleagues at Wills Hospital.

Dr. de Schweinitz, discussing Dr. Holloway's paper, described a patient with epithelioma that had destroyed partly the outer commissure. the lower lid, and had extended inward at the inner angle of the orbit. Pain was severe. The eyeball, which was beginning in its lower area to become epitheliomatous, was enucleated, but complete evisceration was not performed; only the evident epitheliomatous tissues were excised. One treatment of radium (50 mg.) for four hours was followed by very rapid cicatrization and complete relief of pain. A few weeks later a small area of breaking down tissue at the inner and upper angle of the orbit occurred, quickly relieved by a second application of radium. Some months have now elapsed and there has been no recurrence.

### Case of Round-celled Sarcoma of the Choroid.

Dr. Edward A. Shumway reported the case of a man, aged fifty-two years, in whom the first microscopic sections showed an isolated round nodule, lying between the thickened, detached retina and the lens, composed of non-pigmented round cells, of the same size as the nuclear cells of the retina. There was necrosis of a considerable part of the tumor, leaving well-staining mantles of cells surrounding the blood vessels as in glioma, and the growth had the appearance of having sprung from the retina. Further sections of the other half of the eyeball, however, showed the tumor to have sprung from the choroid, and to be in reality a round-celled leukosarcoma of this tunic.

### A Case of Pituitary Body Struma, With Special Reference to the Visual Field Phenomena and the Effects of Organotheraphy.

Dr. G. E. de Schweinitz and Dr. H. W. How detailed the clinical history of an unmarried woman, aged fifty-one years, whose occupation was that of a tuberculosis dispensary nurse. There is nothing of importance in her family or previous medical history, except that after a prolonged siege of nursing she broke down nervously and lost flesh rapidly, as much as thirty pounds. Later, after retiring from this work, the lost weight was regained. Menstruation was established at fourteen years, and always occurred in association with intense pain. Since her forty-ninth year there has been no regular period, and none during the last year. Always, even from early life, she had intense headaches, sometimes neuralgic in type, unaffected by any ordinary treatment. She has had much rheumatism. Her mother was a victim of rheumatoid arthritis. In childhood, convulsions occasionally occurred, and in recent times much numbness in the hands, which was present in all of the fingers and in the thumb of the left hand.

Her eyes had been under observation for fifteen years, and during that period of time had never shown any pathological conditions until early in June, 1914, headaches at that time being very severe, when she complained of blurred vision of the right eye, which previously had always been normal. Examination showed O. D., 6/60; O. S., 6/9; marked pallor of the optic disks. Visual field examination demonstrated bitemporal hemianopic scotomas, and X-ray examination, the typical picture of enlarged sella, suggesting the presence of pituitary body neoplasm or struma. Gradually the vision of the right eye began to improve, but the vision of the left eye deteriorated until nine months after she first came under observation the visual power had dropped to 4/150. The visual power of the right eye never dropped below 6/60. The visual field defect of each eye continued to increase until there was well-marked bitemporal hemianopsia.

The patient declined operative interference, and was placed upon tablets of thyroid extract and pituitary body extract, 2½ grains each, and had taken at the time of the report about 1,400 of these tablets, altogether, therefore, about 7,000 grains of the medicine from about July 1, 1914, until February 24, 1916. A series of visual charts covering this period of time were exhibited, showing the gradual development of bitemporal hemianopsia from paracentral scotomas, and the gradual return of the visual field, chiefly from below upward, until the visual fields were restored practically to their normal extent, and the vision of the right eye was 6/5 and that of the left eye 6/12. Headaches and other symptoms had practically entirely disappeared.

The authors referred to another case, which one of them (Dr. de Schweinitz) had already placed upon record, namely, that of a patient, aged thirty-nine years, with tumor of the pituitary body, as demonstrated by the X-rays, with complete blindness lasting twelve days in the right and six weeks in the left eye, with complete restoration of the vision of the right eye and nearly complete restoration of the vision of the left eye, under the influence of large doses of thyroid extract associated with inunctions of mercury. Whether in the last-named case the mercury had any influence or not was uncertain. Syphilis was not present: at least the tests failed to show its existence. In the first case, however, the good result followed the use of thyroid and pituitary body extract without the addition of the mercurial treatment.

Dr. Holloway stated that he recalled very well the two most interesting cases that Dr. de Schweinitz had referred to, and was quite in accord with him in reference to the importance of this early obscured or hazy vision. He then referred to a patient in his own practice in which this was the only symptom complained of, and the fields showed characteristic changes for colors in the upper and outer quadrant, which was more of a hemianopic than quadrant defect, with a retained island for blue in the left field, which subsequently disappeared. Later an island for blue developed in the right field; whether this was an indication of a partial return of the field it was too early to say. He thought there were now enough cases on record to justify the routine use of organotherapy in selected cases. He then referred to persistent photophobia in a case of pituitary body disease which had remained constant even after several operative procedures. It was interesting to note that in this case there never had been any intraocular changes aside from hyperemic disks and full retinal veins. There were no field changes aside from slight contraction of the form and color fields. Dr. Landon, who performed the autopsy on this patient, found that the chiasm was lying much farther back than was normal, and that the optic nerves were not apparently attenuated. This case belonged to those few cases on record in which the growth was anterior to the chiasm.

### Orbital Cellulitis with Optic Neuritis.

Dr. Ernest B. Mongel (by invitation) reported the case of a young man, aged twenty-three years, who had an attack of influenza February 5, 1916. Four days later his right eye began to trouble him, which, according to the patient's description, was a catarrhal conjunctivitis. The condition became progressively worse and he was sent to Philadelphia and was admitted in Dr. S. D. Risley's service at the Wills Hospital on February 21, 1916. Vision on admission to hospital, R = 20/200, L = 20/20. In the right eye there was intense chemosis and edema of the conjunctiva of both eyelids, and thick folds of swollen and edematous conjunctiva of the lower half of the globe filled in and protruded from the interpalpebral fissure. All the tissues surrounding the eye were hard. There was a proptosis down and out of the right eyeball about 10 mm. The lids could not be everted. There was an absolute suspension of all the ocular movements. The cornea was clear and the anterior chamber of normal depth. Iris was negative. Pupils equal round 4 mm. respond promptly to light and accommodation. T = normal.

Media clear. Fundus: vessels full. Veins dilated and dark, and somewhat tortuous. Nerve head hyperemic, edges very blurred, margins swollen about 6D.; typical picture of optic neuritis.

*Left Eye.* Anterior segment normal. Media clear. Fundus negative. The patient was put at absolute rest in bed and given free elimination and tonics. Constant cold compresses to eye, and atropine locally to eye. After the course of a few days, during which time there was very little pain and tenderness, and less than 1° rise of temperature, the swelling of the tissues gradually lessened, as did the swelling of the nerve. This went on for ten days, when it became evident that the tissues were breaking down. Pus formation set in and signs of pointing showed in the lower lid near inner canthus. In this location a long slender knife was thrust in along the floor of the orbit and directed along toward nasal side, and the profuse quantity of pus evacuated. After this the cavity was thoroughly cleansed and drainage tube inserted and hot alkaline stupes applied. After a few days the swelling of tissues was almost gone. Ocular muscles regained power, and all ocular movements became normal. Nerve head and general fundus also gradually recovered normal condition, and patient left hospital with a correcting glass, which gave him 20/20 vision in each eye.

The most plausible explanation in this case is that the infection traveled from the ethmoid cells through the nasal fossæ, but since the X-ray of the sinuses was negative the only explanation could be metastasis or endogenous infection from grippe.

**Optic Neuritis Following Influenza.**

Man, aged sixty-seven years. Had an attack of grippe. After about one week he noticed that his sight was becoming very dim. After about two weeks of the beginning of illness he was admitted to the Wills Hospital in a very debilitated and emaciated condition; so weak that he could hardly stand on his feet. He looked twenty years older than his age stated.

Vision on admission: O. D. = blind; O. S. = perception of light. Anterior ocular segments normal. Media O. K.—slight haziness of both lenses. Fundi showed optic nerve heads entirely obliterated, only by the convergence of the vessels could they be located. Swelling about 5 to 6D. Very hyperemic. Veins full, dark, and slightly tortuous, surrounding retina somewhat clouded and infiltrated, but no hemorrhages. Urine negative. Blood-pressure: S. = 110; D. = 60. Subnormal temperature. X-ray examination negative.

Patient was ordered absolute rest in bed. Eliminative and tonic treatment was ordered with nutritious diet. This was continued for about three weeks when the patient became very homesick and at his own request left the hospital with his physical condition much improved and the vision in O. D., light perception? O. S., counted fingers at 4 feet. During this period frequent examinations of fundus showed decrease in swelling of nerve heads and retinal edema.

J. Milton Griscom, M. D., Clerk.

## COLORADO OPHTHALMOLOGICAL SOCIETY.

DR. D. H. COOVER, PRESIDING.

Nov. 16th, 1916.

**Divergent Squint.**

Dr. E. Jackson presented a young man, age 21, who formerly had a divergence of thirty-five centrads in December, 1914. This had gradually increased up to this point during the four or five years prior to the above date. A tenotomy of the right external rectus, combined with advancement of the right internal rectus, left 25 to 30 centrads of divergence. Dr. Jackson then performed an extended tenotomy on the left external rectus holding the eye in for thirty hours. At the present time (two years after operation) he has only four degrees of exophoria.

The members of the society commented upon the small cicatrices and the good result.

**Convergent Squint.**

Dr. Wm. C. Bane presented a young lady, age 21, whom he first examined October 25th, 1916. She gave a history of convergence of O. D. since four years of age. When six years old she began wearing glasses and continued to wear them for eighteen months. Three years ago she began to wear lenses again. The vision with her glasses was: O. D. 5/20 and O. S. 5/4.

Examination showed the convergence to be 60 centrads, equalling 7 mm.

On October 31st, 1916, he performed Dr. Melville Black's advancement operation. The internal rectus was severed and the external rectus severed and advanced.

November 10th, 1916, she was refracted and given the following lenses: O. D. +1.50 ○ +0.50 cyl. Ax. 75=5/10—; O. S. +1.50 ○ +0.37 cyl. Ax. 5=5/4.

The result of the operation was very satisfactory.

*DISCUSSION.*

At the request of Dr. J. A. Patterson, Dr. Wm. C. Bane explained Black's operation in detail.

Dr. E. Jackson said Dr. Black's operation anchors the advanced muscle to the sclera with one suture and that the operation was described years ago in the Archives of Ophthalmology.

**Nystagmus.**

Dr. E. T. Boyd presented a patient who formerly had a paresis of the superior rectus muscle of one eye and now has a rotary nystagmus of both eyes, with the quick component directed to the left.

**Congenital Band in Vitreous.**

Dr. E. T. Boyd also presented a girl with a fibrous band extending down and in from the disc of the right eye and slightly anterior to the retina.

*DISCUSSION.*

Dr. D. H. Coover thought this band was a congenital defect, although he said it made him think of opaque nerve fibers when he first examined it.

Drs. W. H. Crisp, D. A. Strickler and F. R. Spencer spoke of the similarity of this structure as compared with proliferating retinitis. Dr. Strickler called attention to the fact that one of the retinal vessels was lost in the mass. Dr. Spencer said it had some resemblance to the fibrous mass left as a remains of the hyaloid artery.

Dr. E. Jackson believed this was undoubtedly a congenital structure or defect.

Dr. W. H. Crisp briefly reported a case, somewhat similar to Dr. E. T. Boyd's, in which there was a large colobomatous area in the macular region of O. D. near the disc. This area was oval and a band of fibrous tissue extended from the disc to the coloboma.

### Xerosis of Conjunctiva.

Dr. H. R. Stilwill presented a man, age 61, with a history of "granulated lids" for the past twenty years. Two years ago he had an operation on the right upper lid for "ingrowing" cilia. The lid margin was split and a piece of mucous membrane from the lip was transplanted in the line of incision. The lids of each eye show old trachomatous cicatrices. The left cornea is negative, but the cornea and bulbar conjunctiva of the right have been dry for the past two years and show marked xerosis. This has been relieved by instillations of pure castor oil.

*DISCUSSION.*

Dr. W. H. Crisp said the dryness was due to cicatricial contraction of the ducts from the lachrymal gland.

Dr. G. L. Strader asked if the lid operation could, in any way, have caused the xerosis? Dr. Crisp answered this in the negative.

Dr. D. H. Coover suggested the removal of the conjunctiva and tarsal plate from the upper and lower lid, so as to let the fibers of the orbicularis come in contact with the eyeball. He said this would be much better than the cicatricial conjunctiva and distorted tarsal plates.

In closing the discussion Dr. Stilwill said he agreed with Dr. Crisp concerning the cicatricial closure of the lachrymal ducts and he quoted from Parsons and de Schweinitz. He said he asked his patient not to instill castor oil the day of the meeting, so the members of the society could see how dry the cornea can be. The eye has some vision in spite of the ground glass appearance of the cornea.

Dr. D. G. Monaghan presented three cases as follows:

### Traumatic Cataract.

D. McC., age 5, history of forceps delivery with a contusion over the left eye. This eye was bloodshot for three months and has squinted. The lens of the left eye is cataractous and that of the right cloudy. The patient is wearing a +2.50 sph. before each eye.

**Corneal Ulcers.**

Mr. W. T., age 36, and a health seeker because of pulmonary tuberculosis. In January, 1915, ulcers developed on the right cornea and resisted treatment for ten weeks. In October of the same year he had a number of ulcers on the right cornea. In April, 1916, a single ulcer developed on the left cornea followed in a short time by many others until nearly the entire cornea was involved. All of the ulcers in each eye have been superficial and near the limbus, but some have been rather large. At the present time, the central portion of the cornea is clear and the cicatrices of moderate density.

All but ten of his teeth have been extracted and his refractive error corrected. There is no specific history and no clinical evidence of lues. The nose and throat are negative and the teeth have been examined by the X-ray.

*DISCUSSION.*

Dr. J. A. Patterson suggested drawing the conjunctiva over the ulcers in case new ones form.

Dr. W. H. Crisp thought radiant heat should be applied.

Dr. Wm. C. Bane suggested Pasteurization by Prince's method and he thought silver nitrate shouldn't have been used. (Dr. Monaghan had used 1% silver nitrate for several weeks during one attack.)

Dr. C. E. Walker said he would curette these with a spud, apply bichloride of mercury 1/1000 and wash out the eye with water. He has found the healing prompt after this method. If the ulcers recur, the treatment can be repeated.

Dr. O. Orendorff thought this patient had suffered from a desquamation of the cornea rather than true ulcers and he would use subconjunctival injections of cyanide of mercury. He wouldn't use Pasteurization, as he believes this is more suitable for serpent ulcers.

Dr. F. R. Spencer said his personal experience with Pasteurization had been unsatisfactory and he has used it in several cases. He stated he had seen Verhoeff, of Boston, use it in a number of cases without satisfactory improvement.

**Traumatic Rupture of Iris and Choroid.**

C. C., male, age 16, was struck November 9th, 1916, over

O. D. with a piece of board from a saw at the Manual Training School. He was examined four days after the injury at which time the eye was sensitive to light; there was circumcorneal injection, the pupil dilated and irregular. The sphincter of the iris was ruptured; there was iridodialysis at the lower nasal periphery and a rupture of the choroid near the macula with hemorrhages and pigment. Vision was reduced to counting of fingers at three feet.

*DISCUSSION.*

Dr. E. T. Boyd thought the pigment in the fundus had nothing to do with the injury, as it was probably there before. The patient didn't give a history of poor vision prior to the injury, however, and the urine was negative.

Dr. C. E. Walker related a case similar to Dr. D. G. Monaghan's. The patient, age 20, was struck with a board and the lower lid cut so that two or three sutures had to be taken. The pupil was dilated and the lens cut and dislocated. Both the retina and choroid were ruptured and blood filled the eye. However, the eye was retained and has some vision in spite of subsequent atrophy of the optic nerve.

### Toxic Amblyopia.

Dr. D. A. Strickler presented Mr. C. T., age 33, who first noticed dimness of vision three months ago, which has steadily increased to date. He has been free from pain, headache and other symptoms. His family and personal history are negative. The urine is negative. He chews a ten cent plug of "horse shoe" in forty-eight hours and drinks some, though not regularly. He counts fingers at three feet O. U., and the fields are contracted throughout, with diminished vision more marked centrally. The color sense for green, red and blue is fair. There is nyctalopia, but no true scotoma. The temporal portion of each disc is pale and the nasal side "looks swollen." There may be exudate on the nasal side.

Dr. J. A. Patterson said one side of the left disc was swollen.

Dr. W. H. Crisp thought the retinal vessels occupied different levels and there were streaks along some of the vessels. Evidently new tissue is forming and he believes there is a recession of a former active process.

Dr. E. T. Boyd doesn't think the case can be one of toxic amblyopia.

Dr. F. R. Spencer said very small quantities of wood alcohol, if mixed with grain alcohol, might have produced this clinical picture.

Dr. C. E. Walker thought the etiology was doubtful, so he would stop the tobacco and alcohol. The patient should have a complete physical examination and an examination of the teeth. K. I. and Hg. should be given to increase the absorption of the exudates. Dr. Walker likes the deep orbital injections of salt solution, as he believes the atrophy of the optic nerve is in part at least prevented. He makes the injection with a curved needle superior and external to the eye, but outside the muscle cone. Ten to twenty minims of 2% solution are used, although he begins with 0.6 to 0.8 of 1%. There is very little reaction or pain. This is aided by salts given by the mouth. He doesn't advocate dionin for deep orbital injections.

Dr. O. Orendorff uses Darier's formulae.

Dr. E. T. Boyd prefers strong cyanide of mercury and a large amount.

### Fibroma of Optic Nerve.

Dr. Wm. C. Bane presented L. B., age 7, first examined in May 1914. He complained of poor V. O. S. and frontal headache for five or six weeks.

Examination at that time revealed: V. O. D. 5/5—; V. O. S.: Light perception only. Right fundus negative and left showed optic atrophy. Media clear. Eye unsteady. No record of exophthalmos at that time.

Refraction: O. D. +0.75 sph.=5/5—; O. S. +3.00 sph.= light perception. One month later O. D. 5/4 and O. S. movement of hand at twelve inches.

This patient wasn't seen again until November 11th, 1916, when moderate exophthalmos of O. S. was found and the eye directed down and forward. The hyperopia, O. S., is now seven diopters. The accessory sinuses haven't been examined.

Diagnosis: Fibroma of the left optic nerve.

Ball has recorded one hundred and two cases and the left eye is involved more often than the right.

Dr. J. A. Patterson said the left eye was limited in movement up and out.

Dr. W. H. Crisp called attention to an exhaustive treatise on this tumor in a special number of the Royal London

Ophthalmic Hospital Reports. There is a reference to this in the Ophthalmic Year Book.

Dr. F. R. Spencer said an X-ray examination should be made.

Dr. J. A. Patterson suggested a blood examination by an internist and an examination of the nervous system by a neurologist.

Dr. O. Orendorff suggested a modified Krönlein operation. so as to avoid the disfiguration of the older Krönlein operation. He has used the modified technique and likes it.

Dr. W. H. Crisp said the case reports of this fibroma show that it is of slow growth and doesn't recur.

Dr. C. E. Walker has used a modified Krönlein operation on a bilateral fibroma in a child of 11. The tumors were large, but have not recurred. The patient has good vision O. U.

Dr. Wm. C. Bane thinks the tumor is near the eye, in the optic nerve, and superior and external to the nerve. It may possibly extend to the brain.

**Vernal Conjunctivitis.**

Dr. W. F. Matson presented a boy, age 14, with hypertrophy of the bulbar conjunctiva at the limbus, O. U., for the past nine years. He had measles just prior to the disease, otherwise his personal and family history are negative. His nose, throat and tonsils are negative. He hasn't had hay fever, but his eyes itch in hot weather. He has not been treated.

*DISCUSSION.*

Drs. D. H. Coover, C. E. Walker and F. R. Spencer confirmed Dr. Matson's diagnosis of Vernal Conjunctivitis.

Dr. Wm. C. Bane said dilute sodium salicylate gave relief.

Dr. W. H. Crisp suggested refraction and tinted lenses after excision of the hypertrophic conjunctiva.

Dr. D. H. Coover uses the following prescription:

Phenol ..................gr. 1.
Antipyrin ...............gr. 5.
Aq. Dist. q. s.............oz. 1.

Dr. J. A. Patterson cut the "sole leather" hypertrophic bulbar conjunctiva off in one case.

**Luetic Neuroretinitis.**

Dr. J. A. McCaw presented a young woman with poor vision, diplopia, swollen discs, tortuous retinal vessels, inability to read, metamorphopsia and exudate at macula. O. S. similar to albuminuric retinitis.

The urine was negative and the Wassermann positive. The heart and lungs were negative. Atrophic rhinitis. No scotoma. R. H. 8½ degrees today. (Nov. 18th, 1916.)

*DISCUSSION.*

Dr. W. H. Crisp saw this patient in April and May 1916 at which time she had: R. H. of four to six degrees, right disc hazy and retinal vessels tortuous. Correction of the R. H. made her comfortable. He thinks her R. H. may at that time have been due to a central luetic lesion.

Dr. C. E. Walker said a R. H. of six degrees is pathological, especially when it comes on suddenly and the cause should be determined. He treats these as he would a paralysis and gives mercury and K. I. in large doses.

Dr. W. H. Crisp gives large doses of mercury.

Dr. W. L. Hess advocates vigorous sweat baths.

Dr. F. R. Spencer believes neosalvarsan is better when given intravenously than any of these.

Dr. E. T. Boyd gives Hg. by inunction and by injection into the muscles. He believes the blood pressure is too high.

**Interstitial Keratitis Due to Acquired Lues.**

Dr. F. R. Spencer presented Mr. R. N. First examined October 30th, 1916. He stated that his left eye had been inflamed for about a week previous and thought he probably had a foreign body in it. Age 29, miner, married. Eight years ago he had a primary luetic lesion on the penis, while in the navy. Admits having had gonorrhoea also. Was discharged from the navy five or six years ago and sent to the Naval Sanitarium at Las Animas, Colorado, for pulmonary tuberculosis.

Examination of the right eye was negative, but the left revealed an interstitial keratitis about 2 mm. from the superior limbus, with many superficial and deep vessels extending to this. Since October 30th, the interstitial infiltration in the cornea has extended downward one or two mm. and there are some deposits on Descemet's membrane from the associated irido-cyclitis, although it is hard to recognize these on account of the haziness of the cornea. V. O. D. 6/4—; V. O. S. 6/5 plus and minus.

The right fundus is negative and the left probably is, although the fundus examination of the left has not been very satisfactory because of the haziness of the cornea.

He was given an order for 5% aqueous solution of dionin with instructions to put three drops in the left eye night and morning; also 1% atropine to be used b. i. d.

The physical examination of his nose was negative, but one of his teeth showed a definite involvement and was immediately extracted by his dentist. The X-ray examination of the accessory sinuses was negative, but the teeth showed the following: Evidence of former abscess where a tooth was pulled recently. (Upper left second bicuspid.)

The following is the report from his family physician. Dr. C. L. La Rue:

**History.**

F. H. negative.

P. H. Acquired syphilis in the fall of 1908. Contracted tuberculosis in 1910. Sputum was loaded with tubercle bacilli for several months following his discharge from the Navy. Was told by several physicians that his syphilis had been cured and that he could safely marry, so two and one-half years ago he was married. His wife and one child, one and one-half years old, are free from clinical signs of lues.

**Physical Examination:**

Heart negative. Small cavity in the upper lobe of each lung.

**Diagnosis.**

1. Quiescent tuberculosis with cavities.
2. Syphilis (General).

November 5th the blood Wassermann was strongly positive. Neosalvarsan, protoiodide, K. I., etc. were immediately given with great improvement in the interstitial keratitis.

Dr. J. A. Patterson reported the sequence of the case of Interstitial Keratitis, which he presented at the October meeting, as follows:

October 27th, 1916, blood Wassermann positive, tuberculous fixation test positive. October 21st, 1916, the day she was exhibited, two drams Ung. Hyd. used by inunction that night.

The corneal invasion spreads in a peculiar manner. The ham-colored patch is still spreading toward the center, preceded in all its progress by a crescentic area of almost clear cornea, with most dense infiltration beyond this area toward the center. Luetin test has been absolutely negative. Another dose of 606 was given today. (November 16th, 1916).

Boulder, Colo. Frank R. Spencer, Secretary.

Wendell Reber.

## OBITUARY.

With deepest regret we record the death, by pneumonia, of Dr. Wendell Reber on December 30, 1916, at his home in Germantown, Philadelphia. The beginning of his illness may be attributed to exposure during his homeward journey from Memphis, where he had attended the meeting of the American Academy of Ophthalmology and Oto-Laryngology.

The announcement of Dr. Reber's death has come as a great shock, not yet fully realized, to his innumerable social and professional friends.

He was born April 3, 1867, in St. Louis, Mo., where his boyhood was spent. He studied medicine in Washington University, St. Louis, graduated in 1889 and practiced in his native city for several years. From his early experiences in medicine he imbibed a love for ophthalmology and early determined to become a special worker in that branch. That he had overcome many obstacles and had attained success, his standing in the profession after he became identified with ophthalmology, gives ample testimony. His eminent qualifications are due solely to his own efforts, for he was obliged, by his lack of pecuniary means, to forego the advantages of post-graduate schools both at home and abroad. He fully compensated for these early privations by regular attendance, by original essays and by thoughtful discussions at meetings of Ophthalmological Societies, and not less by familiarity through both the writings and the personalities with the leaders in ophthalmology in the United States and Western Europe.

After an internship in the Hospital for the Insane at Norristown, where he diligently studied diseases of the nervous system and especially their ocular complications and relationships, he commenced the practice of ophthalmology in Pottsville, Penn. Restricted by the narrowed field and separation from colleges, hospitals, and libraries, after residence of three years, he removed to Philadelphia. He secured positions in the eye departments of the Jefferson Hospital, the German Hospital and the polyclinic, working with enthusiasm, skill and ability. Commencing as a clinical assistant he rapidly advanced to chief and then to the head of his department at the Polyclinic.

The public positions and honors held by Dr. Reber at the time of his death afford a correct indication of his progress and success as an ophthalmologist, and appreciation by his colleagues of his abilities. They are: Professor of Ophthalmology in the Medical Department of the Temple University; Professor of Diseases of the Eye in the Philadelphia Polyclinic

Ophthalmologist to the Philadelphia General Hospital, Samaritan Hospital, and the Garretson Hospital; Consulting Ophthalmologist to the Friends Hospital (Frankford) and the Rush Hospital for Consumptives. For a number of years he was a member of the Oxford Ophthalmological Congress, England, and in 1914 was the only American representative on its Board. He was a Fellow of the American College of Surgeons; Past-President of the American Academy of Ophthalmology; Ex-Chairman of the Section on Specialties of the Medical Society of the State of Pennsylvania; Past-President of the Philadelphia Clinical Association; one of eight Honorary Members of the Chicago Ophthalmological Society.

An enumeration of the titles of the many papers and essays he has written would be superfluous since they are familiar to all who are interested in the advance of medical science. His papers were eagerly read and discussed. They contained, expressed in forcible and original dictum, the records of thoroughly digested experiences, new ideas and thoughts and practical suggestions.

His most valuable writings include: "The Present Status of the Heterophoria Question" (The Ophthalmoscope, October and November, 1914); "Muscular Anomalies of the Eye" in conjunction with a colleague, a work that has run through two editions; Anesthesia, Local and General, in Wood's Ophthalmic Operations; one of the Collaborators of the American Encyclopedia and Dictionary of Ophthalmology; contributions as Department Editor of the Ophthalmic Year Book.

His frequent contributions to medical literature were written in easy and fluent language without verbosity, convincing the reader of the experience, thoroughness and familiarity of the writer with the subject, a familiarity derived from the study of ophthalmic literature published in English, French and German as well as logical deductions from his full and accurate notes of the affections of the large number of patients who had come under his care.

Personally Dr. Reber was a lovable man and had a host of friends. Kind and generous to younger men, just and fair to his contemporaries, dignified and respectful to his elders, his popularity as a man and physician increased with his years and opportunities.

Repinings for his death in the midst of his successful career can not alleviate our loss Imitation of his qualities of industry, perseverence, study, adaptability, manliness—in a word—of his personality may keep bright our memory of him and his works, and help to lessen our grief.

Dr. Reber was married to Miss Jessie Dalrymple, January 6, 1902. His widow survives him. To her we extend our deepest sympathy.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 7 West Madison street, Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

In one military hospital containing 10,000 eye patients, Dr. Birch-Hirschfeld reports 140 cases of nyctalopia.

Architects plans have been drawn for a new building for the Illinois Charitable Eye and Ear Infirmary, to cost $500,000.

A home for nurses at the Manhattan Eye, Ear and Throat Hospital, New York, is being built at a cost of $300,000.

Dr. Clarence Loeb, formerly of St. Louis, has moved to Chicago, where he is associated with Dr. Joseph C. Beck.

Sir George Berry is to deliver the Bowman lecture before the Ophthalmological Society of the United Kingdom on May 3rd. His subject is "Colour Vision."

Dr. George F. Libby of Denver has been compelled because of ill health to temporarily discontinue his practice. He is spending the winter in Baltimore.

The eighth semi-annual meeting of the Sioux Valley Eye and Ear Academy will be held at Sioux City, Iowa, on January 23. The membership consists of 60 specialists of Iowa, Nebraska, and South Dakota.

The next annual meeting of the Pacific Coast Oto-Ophthalmological Society will be held in Spokane, Wash., June 18 and 19, 1917, under the presidency of Dr. Clarence A. Veasey, Spokane.

The Caledonian Hospital, Brooklyn, was opened recently. It is the first Scotch hospital in America, and is non-sectarian. Dr. P. Chalmers Jameson is the head of the ophthalmological department.

While eating his dinner, at a restaurant in Hammond, Ind., recently, Mr. Cosgrove, a farmer living near North Vernon, suffered from the spontaneous explosion of an artificial eye which he had obtained only a few days before.

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The Harvard Graduate School of Medicine announces courses in ophthalmology and oto-laryngology for the months of March, April and May. The courses are designed to give intensive study to those who are already experienced in special practice, and are not open to beginners.

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At the recent meeting of the Southern Medical Association the following officers of the eye, ear, nose and throat section were elected: Dr. Thomas W. Moore of Huntington, W. Va., president; Dr. Edward H. Cary of Dallas, Texas, vice-president; Dr. William T. Patton of New Orleans, secretary.

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Dr. Derrick T. Vail who for the past fifteen years has been Ophthalmic Surgeon to the Cincinnati General Hospital and who resigned a few months ago, has been appointed Consulting Ophthalmologist to that institution.

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The December number of *Annales D'Oculistique* publishes an account of the life and works of the distinguished ophthalmologist Augustus Charpentier, who died suddenly last August, in Argenton-Sur-Creuse, where he was born in 1852.

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A regulation against infant blindness, which was recently adopted by the state board of health of Minnesota, has been signed by the attorney-general and will have the effect of a law. Its provisions require that all physicians or other attendants at births treat the eyes of new-born children with 1 per cent. solution of silver nitrate. Minnesota is the thirty-fifth state to put in force regulations against ophthalmia neonatorum.

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The American Academy of Ophthalmology and Oto-Laryngology at the recent meeting in Memphis elected the following officers: Dr. Wm. L. Dayton, Lincoln, Neb., president; Dr. Edw. Stieren, Pittsburg, first vice-president; Dr. A. C. Magruder, Colorado Springs, second vice-president; Dr. John

Green, Jr., St. Louis, third vice-president; Dr. Lee M. Francis, Buffalo, secretary (re-elected); Dr. Secord Large, Cleveland, treasurer (re-elected).

An Ophthalmological Service has been added to the other departments of Bellevue Hospital, New York. It is located in the new surgical pavilion but is entirely distinct from the rest of the hospital having its own operating, examining and dressing rooms, a staff of attending surgeons, special internes and nurses; its capacity for the present, will be 50 beds. The service is in charge of Dr. Charles H. May, attending surgeon, who will have as his principal assistants Drs. Julius Wolff and John M. Wheeler.

The annual meeting of the Chicago Ophthalmological Society was held on January 15th. It was the twenty-fifth anniversary of the founding of the society. An appropriate topic for the occasion was the early history of ophthalmology in Chicago in an interesting paper by Dr. Casey A. Wood. The future of the society was then discussed by Dr. Wm. H. Wilder. Dr. Kellogg Speed gave an illustrated talk on his recent experiences at an English war hospital, where he served for six months. About one hundred members of the society were present at the meeting. The officers elected for the ensuing year were: President, Dr. Paul Guilford; vice-president, Dr. Francis Lane; secretary and treasurer, Dr. Major Worthington; councilor, Dr. G. W. Mahoney.

Four convicts in the Illinois state penitentiary at Joliet are dead, and eight others are seriously ill after having drunk about two quarts of wood alcohol. It is supposed that the alcohol was extracted from some shellac used in the chair and rattan shops, and which was collected from time to time and secreted by the prisoners in some corner of the prison yard. It is probable that we shall hear of some marked defects of vision among the survivers of this debauch, as is usually the case. In this same connection it is interesting to note that a case of blindness from wood alcohol poisoning was recently reported by the National Committee for the Prevention of Blindness. The victim drank liquors secured at a Brooklyn wholesale grocery. Investigation showed that the bottles, bearing counterfeit labels, contained from forty to fifty per cent of wood alcohol.

Dr. Henrietta May Farquaharson of Chicago is dead, aged 54.

Karl A. Grossman, one of the founders of the English journal, the Ophthalmic Review, is dead at the age of 65.

Roy Gavin Fisher, M. D., aged 33; formerly professor of ophthalmology in the Chicago Eye, Ear, Nose and Throat College; died at a hospital in Tucson, December 26.

The British profession mourns the death of Mr. Robert Walter Doyne (1857-1916). Mr. Doyne was surgeon to the Royal Eye Hospital of London, lecturer at Oxford, and first master of the Oxford Ophthalmological Congress.

The Ophthalmoscope announces the death of its Spanish correspondent, the eminent ophthalmologist Emilio Alvarado of Valladolid. He was best known for his fight against ophthalmia neonatorum, supplying the funds for an educational campaign on this subject from his own pocket.

As we go to press we notice with deep regret the death of Dr. W. Franklin Coleman, who has been for many years one of the leading figures in ophthalmology in Chicago, and has been identified as a teacher in this subject in various institutions. An extended biographical sketch of Dr. Coleman will appear in the March issue of this journal.

Miss Margaretta Washington, great-great-grandniece of George Washington, died suddenly of heart disease, at her home in Philadelphia, on January 11th.

Miss Washington's father was George Lafayette Washington, Charlestown, Jefferson county, Va. He was the son of Dr. Samuel Walter Washington, and grandson of George Steptoe Washington, whose father, Colonel Samuel Washington, was a brother of the first President of the United States. Their mother's maiden name was Anne Bull Clemson.

Miss Washington had a wide reputation among physicians and in medical schools for her skill in drawing anatomical sketches, an art which she acquired without training at any school. These sketches are in use by medical men in all parts of the United States.

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# CONCERNING COLOBOMA OF THE IRIS IN ASSOCIATION WITH CONGENITAL CATARACT.

BY

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The extreme difficulty and in many instances the absolute impossibility of adequately solving the etiological problem in certain faults in ocular development is illustrated in the pronounced defects in the cases of the mother and two children in the one family herein reported, and it is suggested that there may be an association between a vicious prenatal environment and the development of the ocular defect. In a hospital service of about 3,000 new cases yearly such cases have been rarely met with.

In the case of the mother and child now shown, each with definite abnormalities of cornea, iris and lens, and with a history of a second child of the same parents studied by me at an earlier period but now deceased, the element of heredity is strikingly evidenced.

The patient, Mrs. T. R., the mother of four children, two of whom were born with ocular abnormalities, shows the following condition:

O. D. The iris below is notched or slightly folded upon itself and the pupil when dilated alters the position but slightly. At the posterior lens pole is a dense white opacity. Nuclear riders are present and numerous dots of intensive denseness suggestive of calcareous change are scattered throughout the largely opaque lens.

O. S. There is a coloboma of the iris below, with similar irregular lens opacity.

Microcornea is present in each.

In the child exhibited, microphthalmos is present in each eye.

In the posterior cortex of the lens in O. D., is an irregularly round calcareous-like nodule, and the area of the nucleus is marked by a number of riders and several small dot-like opacities.

O. S. Same character of nodule, nuclear area is present but less distinct, and calcareous-like dots absent.

In both eyes the iris below shows a concave depression corresponding in location to the coloboma of the mother.

The second child with a congenital defect died at five months, but had microphthalmos, double coloboma, and lenticular opacities similar to those of the mother and child shown.

The rather vicious prenatal history of this little mother is of interest.

On the paternal side the father was a confirmed alcoholic and user of tobacco, now dead. Cause of death and age at time of death unknown.

Mother is living, now aged sixty-two years, who during her married life was compelled to submit to exceedingly harsh treatment, having passed through periods during which she received insufficient food and at times lacked even shelter. Gave birth to eight children—four boys and four girls—at periods of about twenty-two months, the patient being the fourth in order; previous to the birth of the patient the ill-treatment accorded her mother was particularly wretched.

The patient, Mrs. T. R., was born in England, and was a victim of poor health during the first two years of her life. At the time of emigration to this country, owing to her sickly condition, she was at first refused passage. Teething occurred very late, that is at thirteen months. During her childhood she passed through measles and a very severe attack of typhoid fever, but from twelve years of age and onward she has had very little physical discomfort.

She is the mother of four children: the first a girl, died at seven months of gastro-enteritis, the second, one of the patients shown; the third a child dying at five months who presented the congenital defect referred to, and a fourth child, now aged four months, who shows no lesions whatever in either iris, choroid, or lens.

Congenital abnormalities of the iris in the well-known classification of Lang and Collins consist in:

1. Variations of color.
2. Persistent pupillary membrane.
3. Tremulous iris (iridodonesis).

4. Deficiency of the whole iris (irideremia).

5. Deficiency of a portion of iris structure (coloboma). With the well-known associations of coloboma of the iris (choroidal and retinal coloboma, microphthalmos, coloboma, and displacement of the lens, coloboma of the nerve, and cataract) we are familiar.

It is curious to note that a number of the text-books fail to mention the association of congenital cataract with the iris defect. This combined defect de Schweinitz especially mentions and likewise draws attention to the more frequent involvement of the left eye.

Fuchs refers to the frequency with which cataract develops with coloboma of the choroid and regards the cataract as usually complicated and inoperable.

Let me recall to your memory that previous to the formation of the iris, the anterior segment of the eyeball consists of the cornea, anterior fibrovascular sheath and ciliary body; that the anterior fibrovascular sheath receives its blood supply partly from the ciliary arteries and partly from the vessels of the posterior fibrovascular sheath which are prolonged around the sides of the lens to join it.

The iris is developed by growing forward from the margin of the anterior chamber, and in so doing insinuates itself between the cornea and anterior fibrovascular sheath on the one hand and the lens on the other, pushing the prolongation from the posterior fibrovascular sheath in front of it. The anterior fibrovascular sheath becomes the pupillary membrane.

If we suppose, as recorded by Swanzy, some abnormal adhesion to occur between the cornea, anterior fibrovascular sheath, and lens capsule; or some delay in their separation at the whole circumference of the future anterior chamber, we can understand how a mechanical obstruction to any growth of the iris forward would be induced.

Coloboma of the iris and its complete absence have been shown by Treacher Collins to be different degrees of one and the same condition.

The object of this brief communication is to recite a rather interesting history and to learn whether or not your opinion accords with my own, namely, that in view of the increasing haze of each lens I feel warranted in and propose doing a careful series of discissions, beginning with a vertical incision through capsule into lens extending from the lower to the upper margin of the dilated pupil.

Note.—In the discussion which followed the reading of the above before the Ophthalmic Section of the College of Physicians of Philadelphia, the consensus of opinion favored the procēdure proposed.

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## ESKIMO SNOW BLINDNESS AND GOGGLES.*

BY
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The Eskimo is a Mongol, bears little or no resemblance to the Alaskan Indian, and is admixing with other races. During the past summer I have visited approximately 3,000 Eskimos living on the coasts of Alaska, Siberia and the islands of the Bering Sea and Arctic Ocean.

The ocular regions of the Eskimo resemble those of the Chinese. The palpebral fissure is narrow and sometimes slightly oblique. Many of the Eskimo hunters possess remarkable accuracy of vision, recognizing distant objects which ordinarily require the aid of a field glass.

The common ocular diseases among the Eskimos are conjunctivitis, cataract, trachoma and snow blindness. Presbyopia occurs under the same conditions as in the white races. Certain authors believe that the Eskimos possess relative immunity from snow blindness; but my observations show that they are as susceptible as the Caucasian. Generations of bitter experience have taught the Eskimos the necessity for protecting the eyes from the sun's rays, and they know that one attack predisposes to another. They have also learned that goggles are necessary on *cloudy or dull days.* Many Alaskan pioneers have suffered snow blindness by dispensing with goggles under these conditions, believing that they were safe so long as the sun was hidden by clouds.

Acute snow blindness is infrequent among the Eskimos in midsummer, as snow is usually absent, and I saw no goggles in use. Many Eskimos, having had one or more attacks of snow blindness, complain of defective vision, sensitiveness to light, and the pupils are symmetrically contracted, reacting sluggishly to light. Dr. D. S. Neuman of Nome, Alaska, has examined ophthalmologically many Eskimos with snow blindness, and has frequently found choroiditis and retinitis, which, he believes, cause the appearance of irregular pigmented areas in the cornea. Conjunctivitis and snow blindness are usually associated.

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* Read by invitation before the Section on Ophthalmology of the College of Physicians, Philadelphia, October 19th, 1916.

The unusual intelligence and inventiveness of the Eskimo is shown by the goggles made to prevent snow blindness, all the more remarkable because of the few materials and tools at his disposal. As Arctic winter temperatures vary between zero and 70° F. below, ivory and metals are impracticable. Wood is therefore employed, and each Eskimo makes his own goggles which accurately fit his orbital regions, excluding all light except that entering the two narrow horizontal slits placed directly in front of the transverse median axis of each eye. No two pairs of goggles are exactly alike; some are plain and others are modified by a ledge projecting directly over the horizontal slit for a distance of a quarter of an inch. The inner surface around the slits is usually blackened. The Siberian Eskimo bisects the transverse slit by a vertical one, thereby increasing range of vision. Particularly ingenious is the use of horn taken from the hoofs of reindeer, carved and shaped so as to serve as snow goggles. In order to hold the goggles in place, a sinew from a reindeer takes the place of tape or cords, and is so knotted that the length may be modified quickly and easily.

Snow blindness in a bear has been observed by Rossi[1] while cruising in the Arctic on the Revenue Cutter Corwin, and it is probable that other animals are likewise affected. Six cases of superficial corneal erosion in snow blindness have been recorded by Strader.[2]

Shorney[3] has well described the symptoms of acute snow blindness, *i. e.,* photophobia, blepharospasm, and excessive lachrymation, occurring in himself and a companion.

Parsons[4] is of the opinion that the Ultra Violet Ray produces conjunctivitis in snow blindness, but is not sure that this ray causes chorioretinitis.

*CONCLUSIONS:*

(1) The Eskimo possesses no immunity from snow blindness.

(2) Snow blindness occurs on cloudy days or dark days as well as on sunny days.

(3) One attack of snow blindness predisposes to another.

(4) Snow blindness occurs in animals.

(5) Excellence of snow goggles invented by a primitive people in preventing snow blindness.

(6) The association of conjunctivitis and corneal erosions with chorioretinitis in snow blindness.

(7) The Ultra Violet Ray causes conjunctivitis, corneal erosions, and possibly chorioretinitis.

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# OCULAR DISTURBANCES DUE TO MALARIA AND QUININE.

BY

JUAN SANTOS FERNANDEZ, M. D.,

HAVANA, CUBA.

When we began to practice in Havana in 1875 we had not yet separated as we did afterwards, the disturbances due to Malaria from those due to Quinine.

Concerning the ocular disturbances due to Malaria we also knew what had been written by our teacher, Galezowski [1] in Paris, who was the only one that had given attention to the subject. Concerning those due to Quinine we knew the only two cases that had been published by von Graefe,[2] a true genius who really saw everything pertaining to ophthalmology.

We read a paper at the Academy of Sciences in 1877 on the "Disturbances of vision in Malarial fevers and unavoidable accidents that may rise from the necessary use of Quinine."

There exists in the Annals of Ophthalmology the notice that *Deval* in his treatise "On Amaurosis" in 1851 says that some practitioners had told him that they had seen disturbances of the sight attributed to Quinine. Since then, until *Bunner's* thesis that was read by *Horner* at the Ophthalmological Society of Heidelberg in 1881, and *Knapp* in the same society in 1882, no reports were made on this subject, which we had cleared up, even if we had written the work in Spanish only, but even then the records are kept in the annals of the Havana Academy of Sciences.

At the time we began our practice here in 1875 we found Havana with an asphyxiating and pervading air of malaria and pathology was indeed intimately connected with it. All the fevers and all the neuralgias were considered to be due to malaria, the more so when they had a periodic time of occurrence and therefore quinine was used very extensively on account of its recognized specific properties.

This delirium, so to say, in favor of seeing malaria everywhere and as a natural consequence the employment of large doses of quinine, disappeared later, and for that reason a noted Cuban oculist, Dr. Enrique Lopez,[4] was able to say in 1888 that quinine amblyopia was rarely seen in Cuba, as is the fact now that malaria is better understood, but the same did not happen when we started in our practice in 1875, that numerous cases of disturbances due to malaria were seen by us. In the first case that we saw we noticed that the symptoms of inflammation and hemorrhage observed by Galezowski were missing in our case, and that the lesion was really quite the opposite, as there was an ischaemia or whitening of the retinal vessels of the disc instead of the optic neuritis that we had the right to expect. The lady had lost her vision upon being treated with large doses of quinine for malaria. We believed that the quinine was the cause of the loss of vision. We were still in doubt when a second case came to us; a young lady with true ocular disturbances due to malaria and daily fevers, that have been proved to be still more dangerous to the eyes than the tertiary fevers, and a neuralgia of the fifth cranial nerve and evident optic neuritis, and we were then able to establish the true differential diagnosis, being fully convinced that although the practitioners were seeing malaria everywhere, the ocular disturbances seen were really due to quinine and not to malaria.

The phantom of malaria was so feared that every serious fever was thought to be due to it, and large and frequent doses of quinine were given and at the end the patient lost the sight in more or less amount according to the dose given and to the resistance offered; some children complained of amblyopia very soon and we remember one *a few months old* who was amaurotic and many years afterwards recovered vision, and still when 18 years old, when we saw him last, had both discs atrophied. The oldest case had had the atrophy for several years before we saw it, a lady 50 years old, who when she was young on the occasion of going to a ball with her family, was attacked with a rectal hemorrhage which made it necessary to call her physician, a well reputed doctor from Paris University and a teacher in our own university. He thought the disease to be malaria and gave the patient high doses of quinine. The young lady was cured from her hemorrhage but never again had her sight, for although in the first years the atrophy of the discs was not complete and she was able to walk about, in later years she was totally blind. Of our cases there are two, one a doctor and the other a relative of a colleague, which we have observed minutely.

The widow of Dr. X, 17 years old when seen in 1885, her husband still living, was diagnosed as suffering from a serious attack of malaria and large doses of quinine were given to her that occasioned the total loss of vision. She recovered partial vision but the optic discs were still anaemic and the visual field restricted. But she was able to work, and when seen by us during her later years, she insisted on having my fees paid, stating that with her work she had been able to build up some capital, and we were glad to know this because the disease has advanced so much that if she lives some years more we have no doubt that she will become totally blind.

The other case, that of the physician we mentioned, was a pathetic one; the patient has not been able to start practice because when very young he was given vigorous doses of quinine for malaria and became totally blind. At the examination from the first one could see the anaemia of the discs and the contraction of the fields. In 1898, when we saw him last, he had opacities in both lenses, and as he had to leave the Island on account of our war against Spain, he was operated in New York by Dr. Herman Knapp with indifferent results on account of the condition of the optic discs, and we frequently see him on the streets with a guide.

These two cases are enough to show the gravity that quinine intoxication may have, and that it tends to cause the contraction of the blood vessels of the retina and optic nerve rather than injury to the nervous fibers, and we shall mention still another case to prove how frequent it was to abuse the use of quinine as the only remedy to avoid the disastrous effects of malaria. We are not authorized to deny its existence, because as we were only called to attend the ocular disturbances we could not study the condition early enough to see if the use of quinine was justified, but we are inclined to believe that it was so because the men who used it were men of good standing and of great skill. Even today there would arise some alarm over some grave case, but the study of malaria and other fevers has been so advanced and the bacteriological findings have thrown so much light upon the subject that the situation has been changed greatly.

The case we were going to mention was the following, a girl of 5 or 6 years, daughter of Dr. G. L., who suffered an attack of diphtheria, but who had received some quinine before that from her physician, a clinician of good standing. She complained of loss of sight, although not total, and in the hurry and anxiety because anti-toxin was not yet discovered nobody paid any attention to that symptom and the thing passed away.

Many years afterwards we had to select some glasses for her myopia, and having some difficulty in doing so, we examined the fundi and found some signs that made us ask her father if she had not taken large doses of quinine. The father then stated that she had taken quinine.

Since we saw our first cases we published a paper [4] in which we made clear the difference between the disturbances due to quinine and those that were due to malaria itself, and in later works,[5] the first one of which was read by us before the Academy of Sciences, we tried to induce the profession to make a smaller use of quinine, having in mind that after the exact dose is reached no greater amount will do any good. By that time *Laveran* began to clear the matter up from the etiological point of view, and later on *Manson* with his great discovery crowned the work of progress that has vanquished the hydra of malaria, dominating it even in its own lair, the Pontine marshes. English investigators slept near them inside of the mosquito nets that let the putrid emanations go in but shut the mosquitoes out, and on their return to London were able to transmit the disease to some healthy people with the mosquitoes which they brought over.

We believe that many cases were due to the enthusiasm of the clinician when he found that in quinine he had a specific against malaria, otherwise one could not explain the abundance of cases, frequence of a type which had been seen before only in an insane individual who accidentally swallowed a flask of quinine (50 or 100 grammes), and became totally blind. It is true that when the etiology of a disease is not well defined the practitioners are in the dark. We remember that during the last war against Spain there was a garrison of the Spanish troops in a place well ventilated and in a nice, clean position. The soldiers were in good health until some moving corps passed the place. These last soldiers were affected with malaria and after a sojourn of two days they left the old garrison behind. A few days afterwards the soldiers of the old garrison began to suffer from malaria and the doctors thought that the infection came through the excreta of the malarial patients. The same thing has occurred with tetanus that has attacked also the eye, and we have published an observation [6] of a case that occurred after an operation. This happened when the etiology of the disease was not yet known.

Going back to malaria or to the disturbances due to malaria and quinine, we can state that in those countries where civilization has reached a high standard it has ceased to exist. That happened at Panama in its early times, and fifty years afterwards it has become a safe and clean place.

Ocular disturbances due to malaria are rare now outside of those places in which it still exists, and even then are no more frequent than other eye affections. The diseases more frequently seen are neuralgia of the fifth cranial nerve, iritis, optic neuritis and hemorrhages of the retina, as they were in those times that have fortunately passed and when the wars made their ravages. During those times we observed some optic neuritis due to lack of feeding and auto-intoxications, and we published some observations.[7]

It is hopeful to see that civilization goes ahead in spite of all the obstacles put in its way and to see that there are no new cases of quinine amaurosis, the last ones seen by us coming from Mexico or being old cases that still live. These afford us an opportunity to refute the opinion of a colleague who said that quinine lesions of the fundus were of a transient nature. It is true that in the large towns there were some cases of slight disturbances that soon were cured, but from that same epoch are the three cases we have mentioned and to all of which large doses of quinine had been given.

Quinine, as is the case with all the drugs, not always acts in relation with the quantity taken, but in accordance with the idiosyncrasy of the patient and with the way it is observed. We have tried only to run over the evolution of the disturbances because we were present at the time they happened and in a tropical country well adapted for its existence and also because the lack of hygiene made it possible for the malaria to infect lots of people who were then treated with quinine and without regard for the quantity given. We do not think it necessary to state that for quinine to be dangerous the dose has to be from one gram up to eighteen.

The loss of sight occurs suddenly, and we made use of that symptom to differentiate them at first from those due to malaria in which the symptoms are more insidious. Although one can see the dilation of the pupil and immobility of the same as well as the loss of hearing, the predominant symptom is the aspect of the optic discs which look totally white, looking like the moon in the sky. The absence of the vessels of the disc remind us of the appearance of the disc after embolus of the central retinal artery. The vessels are very narrow and there is from the first a marked concentric reduction of the visual field. Dyschromatopsia is identical in all affections of the optic nerve present: the green and the red are badly seen. Although we have observed a fatal prognosis in the grave cases and in some a total loss of vision, the vision improves somewhat and in some cases, as the one of the child whom we saw again at the age of 18 years, they are able to see enough for the necessary work and for walking about.

In old times in Cuba the common people at the least headache made use of quinine to fight malaria and the dose was generally 25 centigrams kept up for several days. A relative had this custom and we observed that besides the cataracts he began to have, he had also whitening of the discs. But at first we did not think it was due to quinine until after the operation, when the patient not recovering vision we saw the atrophy of the discs that might have been senile but that may also have been helped by the abuse of quinine, and this is a drug that although it does not affect directly the nervous element of the nerve, attacks it through its blood vessels.

We do not know the pathology of the lesions because no autopsies of human persons suffering from it have ever been made, but after the autopsies held in animals subjected to experimentation we know the lesions well enough. The usual dose to cause amaurosis in animals was from 30 to 40 centigrams by mouth and from 15 to 20 centigrams in hypodermic injections.

Without entering into histologic details, which can be proved by whoever wants to do it, we know that it is true that microscopic alterations attack first the retina and only later the nerve itself. The investigators agree that the degeneration of the cells is the positive phenomenon and that that of the nervous fibers is of a secondary nature. The last word about the pathological anatomy of the disease has to be still spoken.

We have been somewhat extensive in describing something that is already known, but we have done so to show how frequently we abandon ourselves to some wrong idea that has no value in medicine, and in this case the wrong idea was the blind use of quinine to fight malaria. Our work may also serve to show that the practitioner should always be on the alert for any new morbid entity that may arise and should be prepared to combat it.

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## NEW OBSERVATIONS ON CORNEA AND RETINA OF THE EYE.

Lecture given Feb. 26, 1916, Before the Gesellschaft der Aertzte, Zurich, Switzerland.

BY

PROF. DR. O. HAAB,

(Translated by ROBERT VON DER HEYDT, M. D., Chicago.)

If in my career as ophthalmologist I have been for years able to observe and now can describe to you some new pathologic changes in the eye, I must thank my honored teacher, Horner, under whose guidance I have followed his most thorough method of examination and observation.

There are two methods of observation which he adopted early and in the practice of which he led many colleagues of his time: First, the examination of the external eye under focal illumination with the loupe, and secondly, the use of direct ophthalmoscopy.

In spite of its great value the use of the loupe came into general practice relatively late. We still use the Hartnock's spherical loupe (Kugellupe), but the newer binocular ones of various constructions have more recently been of great help to us.

By the method of focal illumination and the loupe I have been able to first describe and isolate a keratitis which I called the "gittrige" (grill-like); later the ribbon-like keratitis (Baendertruebung) especially in infantile glaucoma, which was recently so thoroughly described, clinically and anatomically, in a thesis by Staehli. Then I have found the pupillary reflex which I have called "cortical reflex" (Hirnrindenreflex) and now am able to describe to you a new form of keratitis which I have called "alphabet or letter keratitis" (Buchstaben-keratitis).

While we have made few changes in the loupes used for investigating, there has been much improvement in the method of focal light. Especially since we have the Nernst lamp giving a very strong and white light. With it one does not alone see better but actually *more* than with the ordinary gas or electric light.

The Nernst lamp has been recently improved by Gullstrand in the form of a slit (spaltlampe) with which we can easily see the corneal nerve fibers, as well as study the direction of flow of the aqueous, as recently described by Berg (Stockholm) and which has been experimentally proven by my able assistant Turk, when he described the causation of the Ehrlich vertical fluorescein line in the aqueous.

Lately I have also used the still more powerful electric Osram lamp, which is constructed according to the half Watt system. Its illuminating power is near that of actual sunlight, so that with it one can observe the reflexion of the so-called magic Japanese mirror.

These small round mirrors are made of bronze and on their reverse side show ornamentations such as animals, flowers, plants, or inscriptions. The front surface is absolutely mirror-like but in a certain diagonal direction in good illumination you may with some difficulty see a faint reflexion of the figure on the back caused by a very slight alteration in the mirror-like surface and corresponding with the respective design.

According to B. H. Chamberlain, in an article, "Things Japanese," printed in London, this is produced by rolling pressure on the designed surface of bronze casting which transmits a faint copy of the pattern to the front convex polished surface, visible only by reflection in diagonal sunlight. And if you should inquire why convex, I would say the Japanese woman probably prefers to see her picture somewhat reduced in size and thus appear more dainty. These mirrors are antique products and very rare. We can thus demonstrate to ourselves that with strong enough illumination we may easily observe things not otherwise visible and can apply this to the human eye. I must remind you of the importance of localizing irregularities of the corneal surface, be they on the anterior surface as in herpes or on the back of the cornea as are the changes of the before-mentioned Baendertruebung. The important so-called moist clouding (betauung) of the inner surface of cornea, described by Staehli, which occurs in very incipient iritis can only be seen with the Nernst or Osram lamp illumination.

Now, about the corneal disease I have designated Buchstaben keratitis. It is a rare affection. I have discovered seven cases in the past eighteen years. For its observation a very intense lateral illumination is necessary. One sees superficially small and larger zones composed of short, straight, sometimes crossing one another, raised, linear cloudings of the epithelium. In arrangement they resemble straight letters, such as A W V or X. The larger lines may for a certain length be followed by a parallel double border. Scattered among them may be small round infiltrated zones, or a line may be interrupted by a group of these dots.

There is mild ciliary irritation. In one to three weeks the process may terminate, but a marked characteristic of this keratitis is the tendency to relapse. Reduction of intraocular tension may complicate and finally permanent clouding of the stroma and corneal surface may destroy the usefulness of the eye.

This severe type of eye disease is illustrated in a 25-year-old patient. She was discharged from our clinic October 28, 1915 after a year's treatment. Previous to this she had been under the care of four oculists. When we first saw her the useful vision of the left eye had been lost by corneal clouding. Her right eye had been involved for nine months previous to her visit to our clinic, and it showed distinctly the characteristics of the Buchstaben keratitis. In a most discouraging manner and in spite of all treatment the condition continued to progress for six or seven months. In this otherwise healthy individual a roentgenogram showed a very light shadow in the left lung and as the tuberculin reaction was positive, we used tuberculin Beranek, 26 injections, without visible improvement.

Her right eye was rapidly approaching the condition of the first involved left eye and possessed only a fraction of visual acuity. We then commenced injecting old tuberculin (Koch) and a radical change took place at once, ciliary injection subsided rapidly, cornea became smooth and commenced to clear up. After one month vision was 5/60, 4 weeks more 1/3 to ½ and a year after her admission to our clinic vision was 6/8. Now, after four months, you see an absolutely quiescent eye, with a mild corneal clouding, vision 6/6.

The old tuberculin treatment was carried out for three months. 24 injections, slowly increasing, 7 mg. was maximum. Her first involved eye, which shows peculiarly radiating linear cloudings, showed no change, vision 1/10. There is no doubt in my mind that her right eye was on the way to a total loss of all useful vision and this was avoided by the use of old tuberculin.

In diagnosis one must differentiate this keratitis from other forms, of which some may also show linear clouding, as for instance the "streifen-truebung" (linear clouding-striped keratitis) which occurs after trauma or postoperative, in connection with severe iritis, also from the corneal linear clouding produced by a pressure bandage, which corneal change is very apt to occur when the tension in the bandaged eye is subnormal. Its relation to tuberculosis must be further studied as one cannot draw definite conclusions from the behaviour of a single case.

## PART II.

If I now in changing the subject, wish to introduce a few new observations on the fundus, I will first draw your attention to the picture of the normal eye ground, and say that a fairly universal error ascribes the red color of the fundus as due to the blood of retina and choroid. That the visual purple can to a very small degree help in this colorization is positive and generally acknowledged, but to a very recent time ophthalmologists have assumed that the red color was due to the great vascularity of the choroid. In 1887 Von Bezold and Engelhardt published an article on observations on the fluorescence of the living retina, which made Boll suggest that the red of the fundus was due only in a small measure to the color of the blood; as spectroscopically the retina does not show the hemoglobin line. The ophthalmologists in general and especially I did not believe this. In the course of time it however did occur to me that in cases of pernicious anemia and especially in leukemia the fundus never appeared quite as pale as might be expected, if the coloring was to be due to the hemoglobin.

A case of lipemia in the Klinic of Eichhorst last summer gave me the positive proof that the blood color is a very minor factor in producing the red background as seen in the fundus, and that as proven by Marx in 1909 the pigment epithelium just back of the retina is alone responsible for the red to brownish tint.

In this picture of the lipemia fundus you see the red of the fundus not to any degree different than seen in the normal eye. The small retinal vessels are white and the larger ones pinkish-violet. Therefore in a thin column the blood is white and if you examine a section slide of the choroid obtained postmortem, and stained with Sudan, which latter colors all fat red, you will find all vessels of this membrane red, even into the smallest capillaries, and the slide suggests an injection preparation. Therefore this blood which was mostly an emulsion of fat, was not red and the coloring of the fundus in this case practically all due to the yellow red pigment.

The experiments of Marx further show that the red of the eye ground shows spectroscopically no hemoglobin line and that in a fully bloodless eye ophthalmoscopically the fundus still shows a decided red.

Finally it is surprising that the illustrations of albinotic fundi, as shown for instance in Jaeger's Atlas, have not long ago led to the logical deduction that for this pale picture the absence of pigment must be responsible. Only at the posterior pole there is an increase in pink due to the more dense choriocapillaries.

If you compare the fundus picture with the normal you will note how decidedly and more uniformly red the latter is; no doubt in its greatest part due to the increased pigmentation. This increased knowledge of color condition of the fundus explains to us why we see no increase in the red in inflammatory hyperemias of the choroid and that anemias of only extreme degrees manifest themselves by a very mild almost imperceptible loss in shade.

Now in further examining the picture of the normal fundus let me draw your attention to the center of the retina, the fovea centralis or macula lutea. With the aid of this square millimeter zone we are enabled to gain our education as well as our daily bread, for it alone allows the visual acuity necessary for reading, writing and drawing. Ever since using the ophthalmoscope I have given this important region much study and have here again followed a rule of Horner's to add to the view given by the indirect method a control study of the same picture in direct ophthalmoscopy. This study soon enabled me to describe some new diseases of the fovea, as, for instance, the so important traumatic macular changes, including the peculiar and difficult to see, hole in macula, which latter can be produced not alone by trauma but is also seen as a senile change. I have also more accurately differentiated other senile macular changes.

In 1888, at the Ophthalmological Congress in Heidelberg, I first drew attention to the fact that the changes of trauma in the macular zone will aid us to better understand many affections of the fovea. On the basis of many observations I came to the conclusion that this zone of the retina possessed a greater vulnerability.

In the case of ocular contusion, as from a blow with stick or snowball, one not alone sees the transient change at the site of injury in the form of the clouding as first described by Berlin, but independently from this, as I have proven, a similar zone and often permanent changes in the fovea, at times a hole.

Furthermore, a piece of copper in the vitreous, can in time produce disease of the fovea. Also sudden compression from behind as from a shot through orbit can by selective action produce permanent changes in the fovea only. If we add to this the well known fact that the macular region is the site of choice of many retinal diseases, as in myopia, albuminuria, etc., these facts help to prove the increased vulnerability or delicacy of this retinal zone.

This weakness I explained in the before mentioned reports as being due to the delicacy of structure and the complicated physiologic changes that occur in this dignified retinal province and the rapid chemical changes, which are here necessary led me to the conclusion that probably increased function may predispose to pathology. That excessive function can so predispose I will quote examples in other organs: Carcinoma of stomach and uterus, ovarian diseases, emphysema of lungs, in cerebrospinal diseases, isolated involvement of posterior cord in tabes, cortex in dementia paralytica, or the fact that of all cranial nerves the optic is the only one to atrophy, all instances of parts exposed to excessive use in life.

So I had preceded Edinger who a few years later ascribed the causation of many diseases of the nervous system, especially neuritis, and tabes to a functional consumption and wearing out. (Aufbrauch und Erschöpfung).

We see therefore how the study of the complex structures of the eye can form the nucleus of the application of these observations to diseases of the whole organism. We must remember that a great part of the observations on inflammation as a process were originally conducted in the cornea and anterior chamber and there studied. Also the cornea was the first used experimental zone for the cultivation of pus-cocci by Eberth.

If I now again draw your attention to this large picture of the normal fundus and especially the foveal zone, you will notice, that it is enclosed by the well known grayish transverse (queroval) oval reflex ring. This alone shows us that the fovea is very seldom round but transversely oval. Anatomical investigations give us no reason for this peculiarity. This halo bordering the foveal depression is called the foveal reflex. In the middle of the depression we see a light spot which is just perceptible as a small luminous circle or crescent (magnified 15 times by direct ophthalmoscopy) this according to Dimmer is called the foveolar reflex.

Both reflexes are seen only in youth, that is up to an only approximated age; their visibility is in a measure due to the amount of pigmentation present and in addition to this greatly dependent on the normality of the macula in its broadest sense. For more than 30 years I have made a study of these changes and have come to the conclusion that the foveolar reflex is an accurate index of the integrity of the macula and its surroundings, presuming that the conditions for its observation and for instance, the age of patient, can lead one to expect its presence. In addition we may examine the other eye as a comparative guide. In diseases of the macula or its immediate surroundings we see at first a distortion of the foveolar reflex and later absence of the same.

For instance in retinal atrophy secondary to optic atrophy one notices preceding its disappearance a slight enlargement of the foveolar reflex showing the fovea has become flatter. If improvement takes place in a condition where this reflex had disappeared, it may again become visible. Especially important is the determination of the presence of this central reflex in myopia; its early absence is the first indication of macular involvement and demands immediate treatment.

In cases of traumatic macular changes the observation of these reflexes may be of importance. In these cases as well as in changes of an inflammatory nature, as for instance in optic neuritis, I find newly occurring, usually linear reflexes. They are as a rule radial and leave the center of the fovea unchanged. These thin lines prefer at first to develop in a horizontal direction, nasal and temporalward but in fully developed cases form a wreath of long and short lines, surrounding the fovea, like a halo. They are always pathologic and also may again disappear. Probably they are due to an edema of the retina with repeated folding of this membrane.

It is possible, and as a result of several observations, to me a certainty, that a wrinkling of the hyaloid membrane may cause similar, oft very long linear reflexes. That they are due to the hyaloid must especially be presumed if they have no relation to the macular center but are arranged radial to some incarcerated foreign body, to a retinal or choroidal exudate or to an inflamed nerve head. All these reflexes are of importance and must be further studied. Those of the retina, due to the latter's transparency, at least give us valuable information as to the surface conditions of this membrane.

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# NEW OPERATION FOR CANTHOPLASTY WITH SPECIAL TECHNIC IN CASES DUE TO TRACHOMA.

BY

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*Illustrated.*

The operation of Canthoplasty appears to be one of the simplest to perform on the Adnexa Bulbi to the operator of limited experience who does not inspect his cases months after the operation and also to the clinical observer, and we might also, with some hesitancy, without any derogatory criticism, include many of the text books of Ophthalmology. The operation *looks perfect* at the finish of the operation and for this reason we believe our enthusiasm at the time is held so highly that we do not stop to consider our final result.

We are writing this brief in order to impress on our readers who have had failures that we present to you an operation for Canthoplasty—slight or entire in degree—not an operation known as Canthotomy, which we are sorry to relate the operation of Canthoplasty very often in a short time resembles. In order to be perfectly understood we will explain the two terms: Canthoplasty consists in an enlargement of the palpebral fissure by division of the outer commissure—Canthotomy is a division of the outer commissure when we only need a temporary dilatation of the palpebral fissure. This operation is also called temporary Canthoplasty. The conjunctiva is not sutured to the wound and the wound reunites in a short time. This is what happens in so many operations for Canthoplasty.

We have only a few indications for Canthoplasty:

1. Blepharophimosis,
2. Ankyloblepharon,
3. Blepharospasm,
4. Chronic purulent conjunctivitis,
5. Gonorrhoeal conjunctivitis,
6. Cicatricial Trachoma.

We present you with a brief normal anatomical study of the lid in relation to Canthosis:

The posterior surface of the eyelid is covered with palpebral conjunctiva (this conjunctiva is almost wholly attacked in Canthosis Trachomatous) and reflected from the lid on to the eye-ball. The line of reflection is termed the fornix conjunctivae. The upper eye-lid is larger and more movable than the lower, all the transparent part of the globe being covered by it when the eye is closed; it is chiefly by the elevation of this lid that the eye is opened. The outer angles of the lids (canthi) are united. The interval between the two lids is termed the Rima Palpebraris. The tarsi are two thinned elongated plates formed of dense connective tissue. The upper one is the larger. Their free edges are thicker than any other point. At the outer canthus the tarsi are attached to the malar bone by the external lateral ligament, or the thinning of the tarsus, but in the upper it blends with the tendon of the palpebral levator. The membrane is thicker at the outer part of the orbit where it forms the external lateral ligament. The palpebral conjunctiva is closely united to the tarsus. The ocular conjunctiva at the line of reflexion is thinner and is very lax and easily thrown into folds so that the movements of the eye-ball are not affected with Trachoma on the palpebral conjunctiva.

The palpebral fascia acts as a fibrous septum between the cutaneous and conjunctival parts of the eye-lid at its attached border. Any inflammation of the eye-lid will aid in producing canthosis when the inflammation becomes chronic as in chronic conjunctivitis and Trachoma or cicatricial formation from burns or the violent and destructive bacterial infections as gonorrhoea. We have also seen pseudo-pterygium produce canthosis. (See Daniel W. White, U. S. Government Eye Reports of States of Oklahoma, Kansas, New Mexico, Arizona and the Dakotas.) The change in the tissues is confined mainly to the conjunctiva. The conjunctiva is shrunken and thinned very often into fatty tissues and pulls the conjunctiva with it in its degenerate course (Example—Chronic Trachoma), while in burns and other semi-chronic inflammations the cutaneous surface (skin, etc.) is mostly affected. The conjunctiva suffers lightly in those cases. In paralysis of the lid, due to nerve involvement, we have a canthosis. We also find one in the heavy tylotic (drooping) lid either in chronic conjunctivitis or beginning advanced trachoma of the beef-steak eye-lid. "The conjunctiva is connected very closely to the tarsus and the palpebral levator fibres are connected to the tarsus so that disease

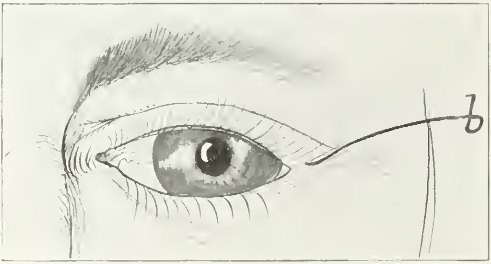


Fig. 1.—b—External canthus, showing canthosis.

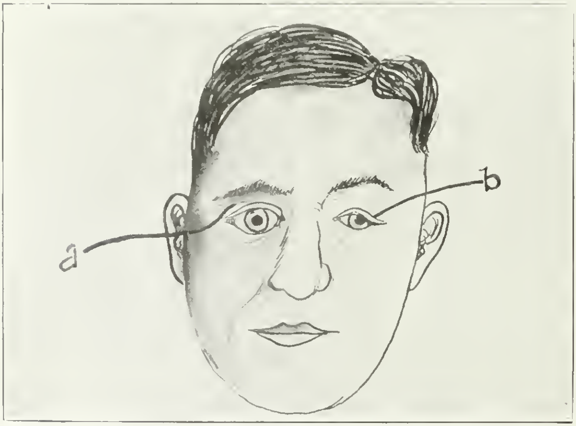


Fig. A-1. a—Normal external canthus; b—external canthus showing canthosis.

like trachoma will cause tylosis." (Remarks from U. S. Government Eye Reports of Daniel W. White.)

We have many mechanical and a few natural reasons for the failure of the operation of canthosis: We wish to state the one chief reason for the failure of the operation. Dr. Casey A. Wood. who has called this point to the notice of the eye surgeon so often—we believe should be commended for his everlasting and commendable knowledge as an anatomist first, then a pathologist and finally a surgeon. He tells us in the Operation of Canthoplasty we should not only cut the fibres of the external lateral ligament in the line of the incision, but also perpendicular to the incision, that is up and then down from the upper edge of the wound upward and downward from the lower edge of the wound, thus separating the external canthal

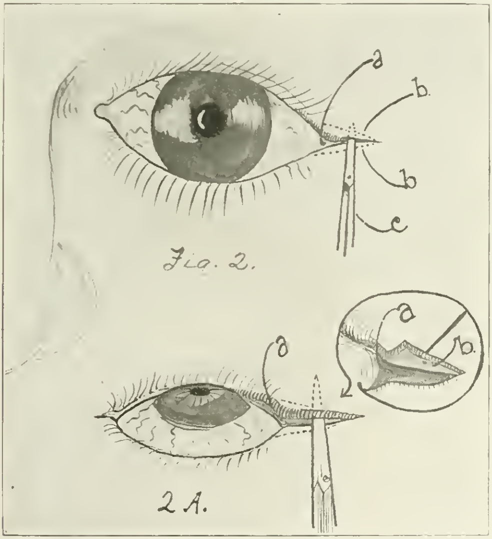


Fig. 2.—Operation. a—Incision; b—undermining upper flap; b—undermining lower flap; c—small dissection scissors for undermining. Note.—Undermining is deeper at beginning of incision and tapers down to end of incision.

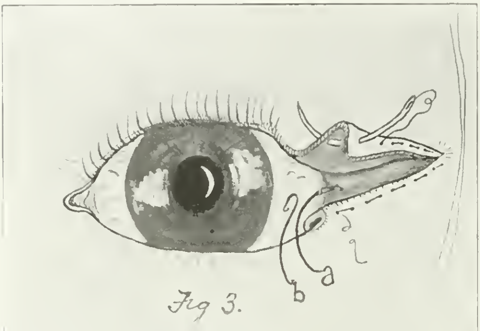
Fig. 2-A.—Showing slight elevation of flap and flap elevated. Note width of flap at end of incision and beginning of incision. a—Raw surface under flap after raise; b—raw surface of flap.

ligament. If you just recall the anatomy you can realize how important this is—we shall repeat:

1. The palpebral fascia acts as a fibrous septum between the cutaneous and conjunctival parts of the eye-lid at its attached border.

2. The natural tendency of wound edges to reunite.

3. The constant opening and shutting of the eyelids thus causing ambulatory inflammatory proliferation of cells—resulting in healing of the wound edges.



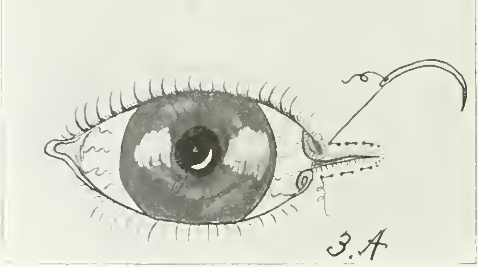


Fig. 3.—Showing upper elevated flap at inner end and flap inverted upon itself at outer end of incision and the placing of sutures in inverted flap. Sutures in place in lower flap after inversion. a—Raw surface after separation of upper and lower flap of first incision; b—ocular conjunctiva at beginning of raw surface.

Fig. 3-A.—Flaps in place after sutures have been drawn and before conjunctiva has been drawn to cover raw surface.

4. The flowing of the tears into the wound, thus preventing infection and causing healing of edges by first intention.

5. Closing of the eye, whether with aid of bandage or

while asleep which will cause the edges to rub on each other producing a pressure and regenerative inflammatory irritation.

6. Exposure of the healed surface to wind and dust and cold, thus bringing out cicatricial scars of the edges and finally a filling up of the new made commissure.

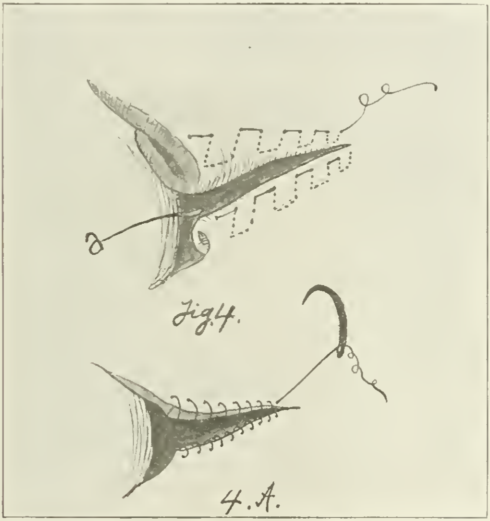


Fig. 4.—Showing inversion of smooth surface, upper and lower flaps on the raw surface. a—Raw smooth surface space. Note.—Unless conjunctiva covers this raw surface, the smooth surface flaps will adhere to the raw surface. This is the cause of failures in this operation. Fig. 4 also shows the running sutures.

Fig. 4-A.—This shows the whipped suture, which is much easier than the running suture, as the edges are whipped into place, this causing a smooth surface to be turned in, to be inverted. This method, however, is not as satisfactory as the inverted flap or running sutures.

7. In the movements of the ball, pulling of the sutured conjunctiva and the sutured cutaneous parts. (The conjunctiva is shrunken and very often cicatrized.)

8. Any time skin or conjunctiva is incised there is always danger of a return of the growth (Pterygium), (Symblepharon in the burns of eye-lid and eye-ball) or resulting scars in the skin after an incision. (Daniel W. White and Peter Cope White Reports.)

After an experience of one hundred and ten cases we feel justified in offering this operation to our colleagues. We have seen and experienced so many failures in the other operation it has been our aim to remove the pathologic cause if possible and then apply the proper surgical measure in our technic. We have made a division of the operation into two parts, the conjunctiva and the skin and sub-tissue parts. (Fig. 5.) Before you start the operation you should inspect the part for *the natural* space between the Rima Palpebraris and also any ptoses of the lids so that you will not misjudge the physiological aspect of the operation. The transverse diameter of the Rima between the canthi is about 28 mm.; if it is less than this, the eye appears smaller and the canthosis is increased, while the size of the eye-ball is nearly the same in all cases.

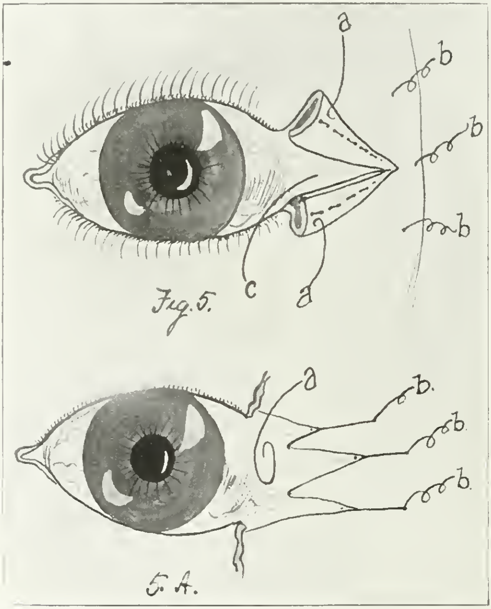


Fig. 5.—Shows ocular conjunctiva drawn over to cover raw surface. a—Smooth (skin) surface; b—cord ends attached to conjunctiva and drawn out of outer surface; c—ocular conjunctiva.
Fig. 5-A.—a—Ocular conjunctiva; b—sutures taken to draw conjunctiva over raw surface and surface completely covered.

The first step in the operation is to make an indelible (Fig. 2) line on the skin for the incision, so that when you stretch this skin at the outer canthus you will have a guide line for a straight and proper level incision. The incision should be made a little above and extending from the external canthus commissure so that more of the fornix conjunctiva of the upper lid may be easily reached. The skin is held widely apart with the fingers and stretched toward the nose so that the canthus is put on the stretch and then with a blunt pointed scissors or a small scalpel a horizontal incision is made through the skin and sub-tissues. A rhomboidal wound is now apparent (sketch or figure) with the apex of the sides of the wound in the conjunctiva and the two outer sides of wound in the skin and sub-tissues. The skin edges are now undermined and dissected back at the outer edges of the wound for some distance—while at the apex or the conjunctival edges of the wound (see figure) the dissection and undermining is more extensive so that the fornix conjunctiva can be reached and also to secure the required post-operative shape and result (Fig. 2).

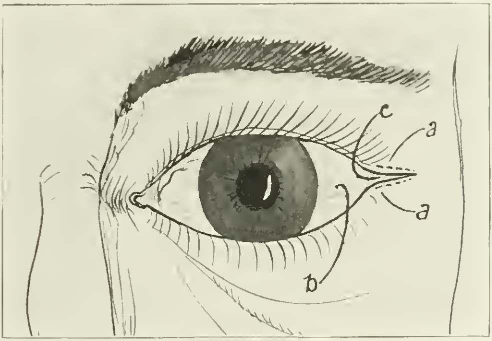


Fig. 6.—Operation completed. a—Sutures in place; b—conjunctiva; c—conjunctiva stretched into new space. Conjunctiva lies beneath the smooth inverted skin flat.

We now have at our disposal two methods of the integument (skin) technic. In the first and the easier method we use a drawn, whipped suture, beginning one suture at the conjunctival apex of the upper edge of the incision and at the same time making the suture deeper, that is to include more of the undermined flap, so that a wider space is obtained and gradually reducing the width of the suture (that is from the edge of the skin on the face) till the center of the outer edges is reached and then continue the suture from the center to the *lower* edge of the lower incision gradually increasing the width of the suture and thus inverting the skin more until the apex is reached. Another suture is started at the lower apex edge of the lower incision and is carried to the center and then to the upper apex conjunctival edge in the same manner, in order that we secure the necessary inversion of the skin and the two ends of the sutures at the upper and lower edges of the wound for tieing purposes.

(Fig. 3—Fig. 4—Fig. 5.)

The sutures at the skin edges should be very close to each other so as to secure an even and entire inversion of the skin.

(Fig. 3—Fig. 4.)

It is now absolutely necessary to divide the canthal ligament in order to make the sides of the commissure draw far enough apart. This is done by seizing the conjunctival border of the wound with the forceps and drawing on it until the resistance of the fibres (canthal ligament) is distinctly felt, then passing the closed blades of the scissors into the wound, feeling for the ligament and when it is found, opening the scissor blades so as just to include and divide it. (Hotz.) It should now be cut perpendicular to the wound, up and down, otherwise the success of the operation will be questionable. (Casey A. Wood.) We also present our *new* folding or turning *in* operation on the skin for canthosis. The incision and other steps are taken in the same manner as in the drawn whipped *stitch* technic up to the place when the sutures are introduced. The skin flap is now folded on itself, that is the skin surface is inverted and folded beneath the raw surface, thus causing two raw surfaces to oppose each other and leaving the smooth surface against the raw surface of the wound. The drawn whipped stitch can be used, starting at the apex of the wound and extending to the center and then to the lower apex of the wound, passing the suture through both folds of skin, or a whipped running suture can be used in suturing the folds. (See diagram of sutures. (Fig. 4a.)

*This* technic has been excellent in very severe cases. Where there are scars on the face the scars should be removed prior to the operation of canthoplasty. (Fig. 4a—Fig. 3 and 3a.)

When you cut the ligament you also incise some of the fibres of the upper Levator Palpebrarum muscle, thus widening the commissure.

The second step in the operation is the conjunctiva. The conjunctiva at the apex of the wound is loosened from the underlying tissue and also for a short distance from the upper and lower lid at the apex of the wound, in such a way so as to reach the fornix conjunctiva in order that when the conjunctiva is put on the stretch no immobility of ball will occur. (The conjunctiva is thrown into folds in the fornix and when traction is made on the palpebral conjunctiva, the movements of the eyeball are not effected.) (Fig. 5—Fig. 5a—Fig. 3—Fig 3a.)

The conjunctiva at the apex is sutured to the skin last. One suture is used to unite the conjunctiva to the upper edge of the skin and one suture is introduced to unite it (conjunctiva) and the skin at the lower edge of the wound. Both of these sutures should be taken well up and as near as possible to the fornix conjunctiva so as to have a lax conjunctiva at those points. The folds of the fornix conjunctiva will give you *this* laxity. The external angle of the wound is now sutured to the conjunctiva thus covering the raw commissure. By carrying out this technic with the last suture you will not have pulling on the conjunctiva and the mobility of the eye-ball will not be interfered with because the pull is on the upper and lower sutures, before the conjunctiva reaches the external angle of the wound, as it is in folds and loose at the external angle of the wound. (Fig. 5a.) This technic will suffice for the partly shrunken and ordinary cases of canthosis.

*We now offer the* technic which we have used so successfully in *advanced* cicatricial Trachoma Canthosis. In Trachoma it is often very difficult, owing to the shrinking of the conjunctiva, to draw the conjunctiva sufficiently into the skin wound and suture it there. Kuhnt takes a flap of skin of the lower lid and uses it in the *New Commissure.* This has been a big advance, but *it avoids* the pathologic condition and at its best is *not* permanent—as disease in the pathologic lid advances, the less effective this will be.

After an experience of the surgical removal of the tarsal cartilage and the palpebral conjunctiva in 702 cases for advanced cicatricial trachoma, we find the mobility of the ball is not lessened and the movements of the eye-lids are improved. In almost every case the patient can open the lid wider after the operation than before the operation. (See article Ophthalmology 1915—Removal of the Tarsal Cartilage and Palpebral Conjunctiva. By Daniel W. White and Peter Cope White.) We state this so that the operator *will not* be timid in following out our technic.

The Tarsal Cartilage and Palpebral Conjunctiva are removed. The fornix conjunctiva is stretched toward the outer canthus and the suture is now placed a little to the inner of the outer canthus, thus giving the conjunctiva at the outer canthus a little more play, thus increasing the already apparent folds and overcoming the shrinking. (Fig. 5a.) After the removal of the tarsus and conjunctiva there will be no apparent shrinking of the conjunctiva at the outer canthus and it can be sewed very easily to the wound. If the operator only has shrinkage of the conjunctiva without trachomatous tissue, he can remove the tarsus only and then complete his canthoplasty. We have performed this (removal of only the tarsus) in a *number* of *xerotic cases* with good results.

It is very important for the operator to consider the pathology of trachoma in those cases as it is *evident* the pathologic lesion will continue in the tarsus and conjunctiva and *unless* the cause is *removed* the success of the operation will be very doubtful.

In removing the tarsus from the conjunctiva, you remove its (tarsus) close connection to the conjunctiva, thus giving the folds of the fornix conjunctiva a chance to aid in making and keeping the new fissure open. "After the Tarsal Cartilage is removed the Canthosis is always helped, due to the weight of the tarsus being removed." (U. S. Government Eye Reports of Daniel W. White.)

*The removal* of the Tarsal Cartilage or the removal of the Tarsal Cartilage and Palpebral *Conjunctiva* should be done for at least one month before the Canthoplasty if the patient will submit to two *operations* at two sittings. The results are always better. This also applies to Entropion or Ectropion operations, where it is necessary to do them *after* the removal of the tarsus and palpebral conjunctiva. We also wish to state the canthosis is improved in some cases 50 per cent after the tarsal and conjunctival operation. It has been our experience for the patient not to return for the Canthoplasty *due to* the improvement from the *Combined* Excision Operation. (Removal of Tarsus and Conjunctiva.)

White Brothers Hospital, Tulsa, Oklahoma, Dec. 20, 1916.

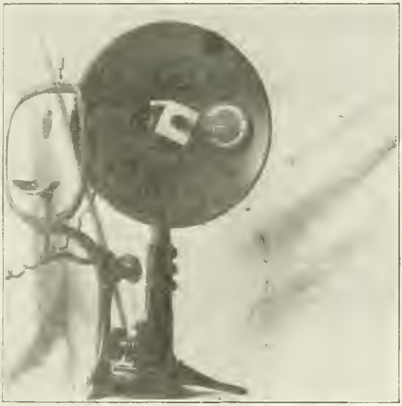
# MAKING THE OPHTHALMOMETER MORE HELPFUL.

BY

S. MITCHELL, M. D.,

HORNELL, N. Y.

To accurately determine and correct the astigmatism that remains more or less permanently following the extraction of cataract, is the duty of all who seek to give to these cases the clearest and most useful vision obtainable, as a result of the operation. The perfecting of the Ophthalmometer has greatly simplified and expedited the task of finding the true axis and the exact amount of the astigmatism. Yet many, like the writer, have undoubtedly been sorely tried and had their ingenuity taxed to the utmost when using the ophthalmometer by the inability of this class of cases to fix with the aphakic eye, and to look into the end of the telescope with the degree of steadiness which is so essential to the operator, in order that he may correctly read and interpret the findings.



Ophthalmometer showing square white card over end of telescope tube emphasizing line of gaze.

Almost invariably the patient's eye will be turned towards one of the brightly illuminated mires, which can be much more readily fixed upon by the eye than is the small dark round aperture of the telescope end, with the dense black field of the instrument for a background.

To bring about the desired result, viz., to have the focal center of the patient's cornea coincide with that of the lenses in the telescope, I have for several years been in the habit of using a piece of plain white paper two inches square, having an aperture 7/8 of an inch in diameter in its center. This square of paper is slipped over the end of the telescope, and the patient is instructed to look at the round center that presents in the square field of white. Since adopting this simple procedure, I do not recall a single failure to secure the desired result.

# SPONTANEOUS RUPTURE OF THE CORNEA, AND DELIVERY OF THE LENS IN A GLAUCOMATOUS EYE.

BY

JAMES H. ANDREW, M. D., F. A. C. S.

BROOKLYN, N. Y.

On the eleventh of November of the present year I was consulted by W. D., aged sixty, with a history of having suffered intense pain in the right eye for about four weeks. The eye had been blind "since childhood."

Examination showed an injected and chemotic conjunctiva, a cornea covered with maculae, and a deep ulcer at the upper limbus. There was trichiasis and the upper eye lid was oedematous.

The tension of the eye was not taken with the tonometer because it was felt that in view of the ulcer, there might be some danger of causing perforation. Careful palpation, however, showed a hard eye with a tension of perhaps 3.

Enucleation was advised and refused. Eserine and dionin were ordered.

Two days later the patient returned stating that the drops had given him considerable relief, but that he was awakened at two o'clock that morning with a sudden sharp pain in the eye, and as he opened the eye something popped out on his cheek. This he saved, and it proved to be a cataractous lens in its capsule.

On examination the eye showed a ragged tear extending from the site of the ulcer downward in both directions around the limbus approximating roughly the usual cataract incision. The iris was slightly prolapsed at the lower nasal end of the tear and a bead of vitreous was protruding. The eye was very soft.

Operative intereference was again proposed and declined 500 Madison St.

# LOCAL ANAESTHETISERS.

BY

ERNEST E. MADDOX, M. D., F. R. C. S. ED.
BOURNEMOUTH, ENG.

Patients are naturally grateful when a tarsal cyst has been shelled out with no sensation of pain whatever. This result can nearly always be obtained if anaesthesia is undertaken in the right way. "Time" is the most important secret. Even solid cocaine, for a brief period, is inefficient. Some large cysts require from a quarter to half an hour for the cocaine to sink in sufficiently. A usual way of maintaining prolonged contact with the anaesthetic is to place a soaked pledget of cotton wool between the eyelid and the globe. This, however, acts like a two-edged sword which cuts both ways, since it inflicts as much cocaine on the eye-ball as on the lid. I have for many years employed little anaesthetisers, or small discs, about the size of a fourpenny bit, lint-like on the one surface and with an impervious backing of thin rubber, or the like, on the other surface. This backing should be just stiff enough to permit the easy introduction of the disc, though not needlessly hard. The warmth of the eyeball makes it a little softer almost at once. The strength of the anaesthetic is now exerted in one direction only. The discs are impregnated, before being cut, with 10% cocaine during their manufacture in bulk, and then allowed to dry. All that is necessary at their time of use is to place a small drop of adrenaline on the half of the disc which is intended to be first introduced and which therefore lies deepest, so as to constrict the blood vessels before their entrance into the cyst, while if thought necessary some more cocaine powder can be added, or more usually a drop of cocaine solution be made to moisten the upper half, which is to lie nearer to the same, or larger discs, *but reversed,* can be used to anaesthetise ocular tendons before the operation of advancement. The impervious backing prevents the tears from washing away the solution so quickly as they do from a mere pledget of cotton wool.*

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*Messrs. Burroughs and Welcome made these discs for me.

# SOME EXPERIENCE WITH COLORED LENSES UNDER SUB-TROPICAL CONDITIONS.

BY

FRED. J. WALTER, M. D.,

DAYTONA, FLA.

When the Illinois state troops were ordered to the border the writer noticed that a generous supply of amber tinted lenses was given them for use against the glare so severe in that section of the country. The writer has had considerable experience with tinted lenses in Florida where the beaches and roads are very white, which gives discomfort much of the time from the strong reflection. The conclusion is that amber is not nearly so good a tint as some others (because it does not eliminate the ultra-violet rays well) and preference is given amethyst (which does not make the world look gloomy) and Crookes tints because they do not cut down the visual acuity and meet the other requirements. The smokes used for so many years are frequently prescribed because of the higher cost of the Crookes, but the smoke does cut down the vision. "Noviol" made by a prominent concern is very good but is expensive. Of course the lightest shade is always given which will give relief from irritation and relieve wrinkles. The writer has not found tinted lenses injurious. Surely much more injury has come from going without them in tropical and sub-tropical climates which have three hundred days of bright sunshine in the year. It really becomes a problem to make northern people comfortable in these latitudes without their correction and a proper shade to their more sensitive retinas. The colored races with more pigment do not notice this as the white races do. The ophthalmologists who live in northern cities have very little real use for tinted lenses except for certain well known conditions. Here in Florida we sometimes have a mild solar-retinitis similar to that found in electric welders. Cataracts are much more common the nearer the equator we go and it has been proven that light is a factor in the production of this.* The writer wishes to protest against the sending away of troops without the best tints for use in tropical countries and to the optical companies who turn out such a large supply of amber lenses for the markets. The fear of making the retina sensitive by the use of colored lenses has made their use too restricted. Keeping in mind that conditions are abnormal and that the prescriber who knows his business is not going to give too dark a tint, and that proper tints will give entire relief (besides removing wrinkles) we should consider this subject a very important one. The further down the coast we go the more use we have for tinted lenses. In Miami, Florida, a very large percentage of the population will be found wearing them. It would be almost unbearable without them. Persons living in northern latitudes with much of the winter season cloudy can have but little conception of what the bright light is in tropical countries. In fact it is so bright that the windows are made smaller, and for this very good and sufficient reason.

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*Paper by the author before The Florida Medical Association at De Land, 1915.

At the annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, held in Memphis, Tenn., December 11 to 13, under the presidency of Dr. John E. Brown, Columbus, Ohio, the following officers were elected: President Dr. William L. Dayton, Lincoln, Neb.; vice-presidents, Drs. Edward Stieren, Pittsburgh, Alexander C. Magruder, Colorado Springs, and John Green, Jr., St. Louis; secretary, Dr. Lee M. Francis, Buffalo (re-elected), and treasurer, Dr. Secord H. Large, Cleveland (re-elected). The next annual meeting will be held in Pittsburgh.

A paragraph has appeared in the daily press to the effect that a machine for scientifically testing the ability of blind persons to learn is in use at Oregon University. It is the invention of Thomas Cutsworth of Riddle, Ore., a blind student here.

The device is a box containing a belt of canvas on rollers. Words in raised letters are printed on the belt. Putting his fingers through a hole in the top, the student attempts to read words by the touch system. The belt is revolved at varying speeds by an instructor, who thus ascertains how quickly a student can learn.

"The box makes possible experiments to show the idiosyncrasies of any blind learner," said Dr. R. H. Wheeler, instructor in psychology. "Cutsworth has also discovered illusions of the blind and has done research work in dreams of the blind.

# REPORTS OF SOCIETIES

## PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

DR. S. LEWIS ZIEGLER, CHAIRMAN.

November 16, 1916.

### A Case of Increasing Refraction Following Increased Tension of the Globe.

Dr. S. D. Risley presented a somewhat detailed history of a patient, now aged seventy-one years, who had for many years worn glasses, correcting hypermetropic astigmatism. Later she became the victim of a mild form of arthritis deformans, with frequently repeated acute exacerbations in one or more joints. These attacks were often associated with painful eyes and with transient impairment of vision. The convex glasses were then rejected, and when first seen by Dr. Risley she had marked increase of tension of the right eye, with field corrected to near the fixation point, a shallow anterior chamber, and vision greatly reduced. Even with the glass she was then wearing, —2.00, vision was ¼ plus. After a year and a half, characterized by numerous exacerbations of injection and increased tension, the hardness of both eyes almost suddenly subsided, the pain disappeared, and the anterior chambers were more nearly normal; but myopia had increased to —4.D in the right eye, and —2.25 in the left, with vision 6/xv in the right and 6/lx in the left. This change was accompanied by an obvious thinning of the anterior ciliary region and a groove-like formation surrounding the cornea, just back of the limbus, with tension normal in both eyes. There were no demonstrable changes in the crystalline lens to account for the increased refraction.

### A Case of Recurring Neuro-Epithelioma.

Dr. G. Oram Ring exhibited a case of extensive recurrent neuro-epithelioma with the following history:

Esther N., a girl aged eight, was seen at the Protestant Episcopal Hospital January 7, 1916. The child had been struck in the left eye three weeks before visiting the clinic. vision was reduced to 12/200; eyeball, white; iris, responsive, but tremulous. The lens, which was completely dislocated to the nasal side, just back of the ciliary body, was partly covered with exudation and two small hemorrhages. The lower half of the retina was detached, the irregularity of the outlines suggesting the presence of a solid growth. There were likewise two irregular areas of glistening white degeneration upward and outward. Tension was normal. There were no enlarged capillary vessels. Advice given was immediate admission to the hospital for further study and operation. The diagnosis made was lenticular dislocation (traumatic), with retinal glioma.

The child disappeared from observation at once, and was not seen for nine months. During this period, another dispensary service had been visited, where the growth was at first regarded as a pseudoglioma. Enucleation was said to have been advised within two months of the date of the first visit.

On August 8th, the child was again struck, while at play, by a little companion, resulting in a rupture of the sclera. Enucleation was then performed at the institution above referred to; but the enucleated eye, unfortunately, was not examined.

The child was again seen at the Protestant Episcopal Hospital about the middle of October, with an extensive recurrent growth, quite two-thirds of the size of a baseball, with infiltration of the lids and temple. Examination of the sinuses was thought to be negative, but the lymphatic glands of the neck were somewhat enlarged. General examination otherwise was negative. Transillumination at the original visit to the dispensary was not satisfactory because of the irritability of the child.

At the time of exhibition, there projected from the orbit for a distance of 10 cm. a very extensive fungoid mass, 22 cm. in circumference, which was regarded as definitely neuroepitheliomatous in character, and inoperable.

Three days before exhibition, the enucleated eye was secured; and an immediate examination by Dr. C. Y. White, Director of the Episcopal Hospital Laboratory, confirmed the diagnosis.

Emphasis was placed upon the trauma and upon the added malignant disease as nullifying the usual diagnostic value of a shallow anterior chamber in malignant disease, and a deepened one in vitreous exudation, the case showing a normal chamber.

Reference was made to the exhaustive studies of Wintersteiner and Flexner as pointing to the origin of such growths in the neuro-epithelium of the retina.

The three varieties of neuro-epithelioma, exophytum, diffusum and endophytum, were described; and the dictum of immediate excision with prompt microscopic study, to be followed by immediate orbital exenteration, if the infiltration posterior to the nerve indicated the further presence of malignant disease, was emphasized. It was pointed out that if early diagnosis is made and radical operation done, about 16 per cent of such cases can be saved. The necessity for differential diagnosis in ten different ocular conditions was dwelt upon.

### Cranial Deformity with Optic Atrophy; Opticociliary Vein in the Left Eye.

Dr. T. B. Holloway exhibited a young man with the following history:

J. L., aged nineteen years, a Hebrew, was first seen in September, 1916, when he came to the Polyclinic Hospital desiring an operation for a divergent squint. He had had poor vision as long as he could remember. He had been subject to convulsions since the age of one year; but during the past year the attacks had been less severe, and he did not fall, but merely became "dizzy" for about three minutes. His mother was dead, the result of pneumonia complicating labor. His father, three brothers, and three sisters were living and well. No brothers or sisters were dead. He denied venereal disease and said that, aside from the convulsions, he had never been ill. He was five feet one inch in height, and weighed one hundred and twenty-five pounds.

Neurological and medical examinations failed to reveal any organic trouble. Nose and throat examination disclosed a deviation of the nasal septum to the left side. There were no abnormalities, aside from extra canine teeth. The head was not of true tower-skull type, the deformity not towering anteriorly. The Wassermann test was weakly positive. Skull measurements: Bitemporal, 117 mm.; stephanion diameter, 130 mm.; maximum transverse, 137 mm.; anteroposterior, 186 mm.; circumference, 524 mm.; biauricular curvature, 332 mm.; cephalic index, 73.6.

Both eyes were prominent. The right eye measured 22.5; the left, 22 mm., with Hertel's exophthalmometer. There was a divergent squint of the right eye, measuring 10 degrees on the perimeter. There were no extra-ocular palsies. Upon attempts to fix a near object, the right eye remained divergent; but both pupils reacted with a well-marked contraction. Both reacted well to direct and indirect light. Each disk showed a well-advanced atrophy, with but slight reduction in the caliber of the retinal vessels. On the left disk, a small vessel entered the inferior temporal vein between the exit from the papilla and the disk margin. It described an S-shaped course, and disappeared, at the nasal margin of the disk, into the choroid, where it could be followed for a millimeter or two. In color, it corresponded with an artery; in appearance, it corresponded to the description given by Shoemaker (Annals of Ophthalmology, 1909, xviii., p. 241). Each eye was of the compound myopic, astigmatic type. V. O. D., fingers 15 inches; V. O. S., 6/15.

Dr. Holloway referred to the various theories concerning the etiology of the cranial deformity, as well as the optic atrophy. In exhibiting the stereoscopic X-ray plates made by Dr. H. K. Pancoast, he commented upon the enlargement and displacement of the sella turcica and the massive bony development of the face, and thought it possible that disturbance in the function of the pituitary body might be responsible for the latter. With the right eye, there was less of the macular field and of the upper half of the field, except a small isolated patch. He thought that this might be due to some constriction or pressure about the optic foramen, such as might occur in an exaggeration of the condition found and described by Behr.

*DISCUSSION.*

Dr. Zentmayer asked whether Dr. Holloway had found in literature any reference to glandular feeding in these cases. The results secured from such therapy might have some bearing on the relation of pituitary disease to this condition.

### Hyaline Bodies on Optic Nerve Head.

Dr. Edward A. Shumway reported a case showing an unusual development of hyaline bodies on the optic nerve head. The patient was a man aged twenty-one years whose vision had been very poor since early childhood. The margins of each optic nerve were covered by extensive clusters of the hyaline bodies, which were peculiarly wax-like and glistening in appearance. The macular region in each eye was the seat of widespread superficial disturbance of the choroid and retina, so that vision was reduced to 6/30. The retinal vessels were reduced in caliber and the visual fields were contracted, especially for color. There was achromatopsia for green. Dr. Shumway thought the macular lesion might be considered a pigmentary degeneration of the retina without pigmentation. The two conditions had been reported together in a number of instances. He referred to the blurring of the nerve heads, usually present, and said that he believed all cases of "pseudoneuritis" should be watched from time to time; as he had known of two cases that for a long time were considered "pseudoneuritis" in which the condition had developed into choked disk, and upon operation brain tumor had been found.

*DISCUSSION.*

Dr. Holloway stated that he had seen but one other case in which the lesions were as marked as in the case described by Dr. Shumway. He had observed the presence of hyaline bodies in cases of retinitis pigmentosa, and referred to one patient who had been under observation for at least six years, during which the lesions had increased in number, being now quite extensive, but not so marked as in Dr. Shumway's patient.

Dr. Zentmayer said that the presence of hyaline bodies on the papilla in pigmentary degeneration of the retina cannot be of so rare occurrence. He had seen three such instances in his own limited experience with the affection. Some years ago, he presented at the section a patient with marked hyaline deposits on the papilla, associated with hyaline changes in the retina, and said that the case suggested that in some instances, at least, there might be a relation between the two conditions.

### The Ophthalmoscopic Aspects of the European War as Seen in the American Ambulance of Paris.

Dr. Hunter W. Scarlett stated that the peculiar nature of trench fighting produced so many head and face wounds that the number of eye cases was necessarily large. During the first two years of the war, the Eye Service of the American Ambulance treated about five hundred cases. These were of all degrees of severity, and consisted of traumatic conjunctivitis; foreign bodies (intra- and extra-ocular); traumatic cataracts; tears of choroid and retina, and detached retinas; injuries to optic and oculomotor nerves; wounds of the orbit, causing loss of lids and conjunctival sacs and in some cases of the bony parts of the orbit; cerebral injuries, producing lesions of the optic centers and pathways.

Most enucleations were done under local injections of novocain and adrenalin. This was due mainly to the fact that the administration of ether would have exposed the patients to pneumonia, because of the accompanying face injuries, which were usually present. The percentage of blind in the American Ambulance was three per cent.

The projectiles causing the ocular wounds were as follows; in their order of frequency: (1) exploding shells; (2) rifle and machine-gun balls; (3) grenades; (4) bombs; (5) shrapnel. Their mode of action was:

(1) Contusion of the globe by either direct or indirect action.

(2) Rupture of the membranes, with or without penetration.

(3) Infection of the globe after injury.

(4) Section or injury to the optic or oculomotor nerves.

(5) Intracranial lesions.

J. Milton Griscom, M. D., Clerk.

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## COLORADO OPHTHALMOLOGICAL SOCIETY.

DR. E. E. M'KEOWN, PRESIDING.

December 16th, 1916.

### Tuberculosis of the Retinal Vessels.

Dr. Wm. C. Finoff presented Mr. L. E. B., age 28. Rancher by occupation. Had chicken pox as a child. When twelve years old had a severe attack of influenza; since that time has enjoyed the best of health. Denies having had venereal diseases. Has not had a chronic cough nor has he lost weight recently. Three years ago he complained of symptoms of eye strain and was given lenses, which gave him relief. Family history good.

Sometime in October his eyes became very red and painful, but without marked photophobia or lachrymation. Noticed upon arising suddenly from a stooping posture, he saw yellow and gray spots to the periphery of the visual field. There was no pus in his eye. This lasted about ten days and gradually disappeared until he was apparently well. The eye was not treated. Shortly after this attack he came to the city and was employed as bookkeeper.

In November, 1916, the eyes became red and painful.

Photophobia and lachrymation became so severe that they interfered with his work. The symptoms rapidly increased in severity until it was only with the greatest effort that he was able to keep his eyes open.

He consulted me November 17th, complaining of severe photophobia, profuse lachrymation and ocular pain. V. O. U. 6/6. There was marked circumcorneal injection of both eyes. The right cornea had two deeply located, fine, oval, grayish infiltrated areas in the upper temporal quadrant. They were 2 mm. from the limbus. The upper opacity was 1½ mm. in diameter and was denser. The lower was 1 mm. in diameter and was separated from its fellow by 1 mm. of clear cornea. The left cornea had two opacities in the lower temporal quadrant, which were larger than those in the right cornea, and two small ones, pin point in size in the pupillary area. The infiltrates were grayish in color, without blood vessels and did not stain.

The pupils were dilated and revealed the following: The margin of the right optic nerve was ill defined. There were two oval patches, about 1/5 of a disc diameter, of grayish exudate, one covering the superior nasal vein and the other the superior nasal artery. These were seen near the margin of the nerve head. Two similar patches could be seen covering the first upper branch of the superior temporal vein and these were separated by about ½ of a disc diameter. The intervening portion of the vein was slightly constricted. The vein was not markedly distended distally to the infiltrations. Because of the marked photophobia, the examination was discontinued, atropine, 5% dionin and calomel were prescribed and a subcuticular injection of tuberculin was given.

Nov. 20th: Pupils dilated and lachrymation was less. No change in the corneal opacities. Fundus examination revealed in right eye numerous small patches of exudate covering the retinal veins. The veins are somewhat distended and, near several of the exudates, they are irregular. All of the patches are to the temporal side and in the periphery. Report from his dentist negative. Wassermann negative. Urine negative.

Nov. 22: O. D. No change in corneal opacities. Increase in number of retinal exudates and those that were formerly present have increased slightly in size. O. S. No change in cornea. There is a slight haziness over inferior temporal vein and it is slightly irregular. These changes are apparently a focal reaction, but not constitutional.

Nov. 26th: Corneal opacities not as dense as when last seen. Fundus much the same.

Dec. 2nd: V. O. D. 6/12; V. O. S. 6/15. Corneal opacities show slight improvement. The right fundus presents two large opacities on the temporal side near the equator; one is about ⅔ the size of the nerve head, is yellow and covers the vessels; the other is lower and is about 1½ times as long as the disc and ½ as broad. It has irrgular edges and is yellow. These were two new opacities about 1/5 of a disc diameter in size, covering the lower nasal vein. In the left eye four small patches were found far forward covering the veins. The veins in the vicinity of the exudates are irregular.

He gives a history of having a suspected tuberculous cow in his herd from which he received his milk. Thinking that there might be a possibility that this was the bovine type of tuberculosis, a 1/2000 mg. of bovine tuberculin was injected subcutaneously Dec. 5th.

Dec. 8th: V. O. D. 6/30; V. O. S. 6/30. In the right eye along the lower temporal vein, between the patches of exudate, a small hemorrhage was found. There were several new patches of exudate in the left fundus all far anterior.

Dec. 10th: Vision same as before. Another small hemorrhage near the vein in the upper part of the right eye, corneal opacities are very much improved. Dec. 12th: Fundus picture much the same.

Dec. 16th: V. O. D. 6/30; V. O. S. 6/30. Corneal opacities very much smaller and only seen with condensed light. In the right eye the larger patches of exudate have disappeared and have been replaced by smaller hemorrhages. There are other small hemorrhages in the region of the patches of the exudate. The left fundus shows little change from the last examination.

With the history of consumption of milk from a probable tuberculous cow and the appearance of a more decided focal fundus reaction after the administration of a small dose of bovine tuberculin, the possibility of the bovine type of ocular tuberculosis is worthy of careful consideration.

*DISCUSSION.*

Dr. Edward Jackson thinks this is undoubtedly a case of tuberculosis of the retinal veins, but with less hemorrhage than he has usually seen. His own cases of proliferating retinitis are well, with almost normal vision. This case of Dr. Finoff's has manifestations of the disease in the ciliary body and vitreous. Therefore, Dr. Jackson thinks this may be the primary focus in the eye. Dr. Jackson's case shows only manifestations in the retina. Dr. Verhoeff, of Boston, has suggested that the retinal disease is secondary to the disease of the ciliary body and choroid.

Dr. Spencer also thought this case was undoubted tuberculosis of the retinal vessels, as it is very much like the three cases he has just reported before the American Academy of Ophthalmology and Oto-Laryngology at Memphis.

Dr. J. A. Patterson reported a case he had last year under observation with involvement of the ciliary body and choroid. This case had a lardaceous deposit on Descemet's membrane. He now has a case, referred to him by a colleague, which he is taking care of during the latter's absence. This case is not improved by any luetic treatment, but is responding to tuberculin treatment.

Dr. Melville Black asked Dr. Finoff if general reaction followed the administration of bovine tuberculin of one mg. Dr. Finoff replied in the negative, and stated that only a local and focal reaction followed. Dr. Black emphasized the importance of care in giving tuberculin. He thinks bovine tuberculin should be administered in Dr. Finoff's case. He stated that he saw all of his cases late and they don't respond well to treatment, when there is so much involvement of the retina and vitreous. All of his have had a very hazy vitreous when first seen; the vessels were proliferating into the vitreous masses. The accessory sinuses may be tuberculous.

Dr. Patterson asked if there are any reported cases of ocular tuberculosis due to bovine tuberculosis? Dr. Finoff stated that Verhoeff thinks ocular tuberculosis is due to bovine tuberculosis. He thinks this has been acquired from milk.

Dr. Black stated that he had had a number of cases, in his clinic, of eczematous conjunctivitis in bottle fed children and he is watching these children for manifestations of bovine tuberculosis. He thinks the treatment with tuberculin is very important, but the tuberculin should be given cautiously.

**Interstitial Keratitis.**

Dr. E. T. Boyd presented Miss I. H., age 16.

Family History.—Eyes were sore shortly after she was born and were very bad for the following sixteen months. Vision has never been good since. At the age of eight or nine she was greatly troubled with her eyes; they would get red and, at times, she would be able to see but little.

Her condition, at present, is as follows: O. D. On the anterior capsule of the lens, a little below the center, there is an opacity; slightly deeper in the lens substance there is another opacity. O. S. In the center of the anterior capsule there is an opacity and another more deeply in the lens substance. The corneae show evidence of former interstitial disease. There is horizontal nystagmus.

The Wassermann test was negative.

*DISCUSSION.*

Dr. Black said the poor vision and the nystagmus go together, hand in hand. He also said that the parents of this child haven't been with her in the clinic and it is very difficult to get a good history of the infantile disease from the child. The blood Wassermann was negative. He thinks she hasn't had ophthalmia neonatorum. Dr. McKeown asked the age limit for 606. He thinks it can be given at any age and this seems to be the consensus of opinion.

Dr. Spencer stated that his case of interstitial keratitis, shown at the November meeting in Dr. Coover's office, had responded well to neosalvarsan. In fact, at the time of writing up these transactions, January 8th, 1917, the eye has entirely recovered with good vision.

### Ectropion of Lower Lid.

Dr. Melville Black presented a man, age 25, who has always been exposed to bad weather. He has a fair complexion and showed not only marked ectropion of each lower lid, but marked eversion of the puncta and lids. Dr. Black slit the lower puncta with sharp pointed scissors and made a vertical cut down each lid from the punctum. He then cut out a triangle about 2 mm. in size. This made a larger punctum, which is much easier to bring in contact with the eye ball. After doing this, Ziegler's cautery punctures were made deep into the tarsal plate of each lower lid at a number of points, so at the time this patient was presented before this society, the lower lids rested against the eye ball in proper position and the puncta are draining the tears perfectly. He used for this Todd's cautery point.

The right lower lid was punctured four times from two to four mm. from the lid margins. This was all done one week prior to the meeting. He first syringed the tear ducts to make sure there was not advanced disease in the tear sacs, as, of course, it is impossible to get the best results in such cases until the dicease of the tear sac has been properly treated. He emphasized the importance of having a patent tear duct, if one expects to obtain the best results by this method of treatment in any case.

**Optic Atrophy.**

Dr. H. R. Burns presented a lady, Mrs. J. D., age 28. V. O. U. 2/200. Sudden and complete blindness came on January 6th, 1916, lasting for two weeks, when the vision slightly cleared, but has never been any better than at present.

The week before Christmas, 1915, she had tonsillitis and influenza, but was not attended by any physician. At that time her husband took home a bottle of whiskey, from which the patient drank a few "hot toddies." While convalescent, she took a teaspoonful of strong whiskey two or three times a day. On Christmas day, 1915, her vision was hazy; in fact, so much so that she did not look at her Christmas presents, because of her inability to see clearly. A few days after Christmas her vision was quite hazy after arising, but would clear up a little during the day. The patient had never been troubled with blindness or hazy vision until after drinking the whiskey.

Jan. 3rd, 1916. Urine found to be loaded with albumen. Jan. 6th, sudden blindness. One physician suggested an anaesthetic and abortion; another advised against this and gave medicine, which was followed by a miscarriage on Jan. 13th, 1916.

Flashes of light were seen about one week after the child was born, at which time she could plainly see objects. This lasted for about six weeks. The patient claims her vision has improved.

Provision diagnosis: Optic atrophy, each eye, due either to nephritis or alcohol, as there is a history, which makes each a possibility.

*DISCUSSION.*

Dr. Walker said a patient in charge of Dr. Monaghan was advised to have an abortion. This case was very similar to the one Dr. Burns has just presented. This patient has had a child since with no eye trouble. There was marked optic atrophy. V. O. U. about 20/70.

Dr. Boyd thinks the history of alcoholism is merely a coincidence and that the disease is due to nephritis or rather the nephritis of pregnancy.

Dr. Patterson believes the tonsillar disease may have been a bigger factor than has been emphasized. He believes the whiskey should be examined for methyl alcohol, as he suspects the optic atrophy is due to methyl alcohol.

Dr. Black said the whole macular region was covered with dots of pigment due to a neuro-retinitis of pregnancy, but he feels a competent chemist should examine the whiskey for methyl alcohol.

Dr. Sedwick has had two cases of methyl alcohol atrophy in one eye of each case during 1916, since the state went dry.

Dr. Strickler thinks this case is undoubtedly due to methyl alcohol poisoning.

### Disease of Optic Nerve and Retina Due to Accessory Sinus Disease.

Dr. E. E. McKeown presented a man with a history of failing vision in O. S. His vision was 20/200. This returned to normal and then two days ago was 20/200. His vision was 20/70 when first examined. Today (Dec. 16th, 1916) it is 20/100. He can see one letter in a line and not the next letter to it. He has a central scotoma with a good form field.

The Wassermann test was negative.

*DISCUSSION.*

Dr. Black thinks the blind spot should be measured on a campimeter and the teeth and the sinuses thoroughly examined by X-rays. He believes the accessory sinuses should be examined by the X-ray. He thinks the X-rays will not show the presence of pus, but that the sphenoidal sinuses are the ones chiefly diseased.

Dr. Spencer said this case was very much like his case presented before the first Colorado Ophthalmological Congress. He believes the optic nerve and retinal disease is due to disease of the sphenoidal sinuses and the posterior ethmoidal cells. The sinuses should be X-rayed.

Dr. Black reported injury to a railroad man, who had been pinned under the debris in a wreck. He showed a conjunctival hemorrhage in one eye, but the vision was not tested at that time. He came to Denver to consult Dr. Black and brought his lawyer with him. The good eye could be examined and the retina clearly seen with a plus seven in the ophthalmoscope. The poor eye could be seen with a lens of the same strength too. Each eye showed some astigmatism. His manifest refraction was briefly taken and his vision was improved to approximately 20/40 in each eye with the correcting lenses. Dr. Black explained to him that he needed glasses. This seemed to be a disappointment to his lawyer, as they were counting upon suing the railroad.

Dr. McKeown reported that the case with steel in the vitreous now has 20/30 vision, since the lens has been needled, and the steel removed from the vitreous with a giant magnet. The steel was in the eye two years. This same case was shown at the March meeting of the Colorado Ophthalmological Society in 1916 at Dr. McKeown's office. He explained that he wanted to remove the steel long before he did, but the patient would not consent to this. The Society congratulated him upon the good result when he failed to have the co-operation of the patient and when the steel had remained in the eye for so long a time. F. R. Spencer, Secretary.

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A writer in *The Lancet* submits a table showing the visual standards for recruits in the chief European armies. In France, Germany, Austria and Italy, the vision with glasses determines the acceptance or rejection of a recruit; whereas in Great Britain it is the vision without glasses which counts. This difference is due to the fact that up to the commencement of the present war the British army was organized largely for foreign service at a great distance from its base, where there might be difficulty in providing proper fitting glasses. In the British army the standard for general service requires *without correction* vision of 6/24 in the better eye and 6/60 in the worse eye, which must be the left. In Germany combatants are required to have corrected vision of at least 6/12 in one eye, while in the other eye the corrected vision may be minimal, and in the Landsturm the second eye may even be blind. In the armies of Germany, Austria, France and Italy, more than 6 D. of myopia are allowed. As far as shooting is concerned, it is generally agreed that vision of 6/12 at least is necessary, and on the continent it is believed that a soldier with 6/12 vision wearing glasses is more efficient as a combatant than another with 6/24 vision without glasses. Continental authorities have found that on an average soldiers who see best shoot best.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 7 West Madison street, Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

The February number of the British Journal of Ophthalmology publishes abstracts of twenty-one papers on various eye injuries, etc., in the present war.

Dr. Oscar O. Breitenbach, formerly of Frazee, Minn., has moved to Columbus, Ind., and has limited his practice to diseases of the eye, ear, nose and throat.

At the Oxford Ophthalmological Congress in July, Dr. George M. Gould, of Atlantic City, N. J., will open the discussion upon "The Correction of Errors of Refraction."

Dr. Uribe Troncoso, formerly of the City of Mexico, and editor of the "Annales de Oftalmologie," is delivering a course of lectures in the New York Post Graduate Medical School.

The Appui aux Artistes, Blind Soldiers' Hospital at Parma, Italy, and the Italian Red Cross, received equal shares of $13,500, the net proceeds of an operatic entertainment given in Chicago in January.

The Chicago Department of Health has recently made a survey of the barber shops in Chicago and found many of them using cosmetics containing wood alcohol. Prosecutions will be started at once.

With the completion of the new building for the Harlem Eye, Ear and Throat Infirmary, at One Hundred and Twenty-seventh street and Lexington avenue, the name of the institution was changed to the Harlem Eye and Ear Hospital. The hospital now has twenty-five beds, and presents an excellent opportunity for clinical experience.

A monthly journal, devoted to the interests of soldiers whose eyes have been lost or injured in the present war, has just been founded in Paris by M. Brieux. One of the main purposes of the journal is to try to establish a bond between these blinded soldiers and those interested in them, and the directors of schools for their "reeducation."

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Dr. Flavel B. Tiffany of Kansas City expects soon to add another book to his creditable collection of writings. "A Journey Around the World, by an Oculist" will include discussions with many leading ophthalmologists, and accounts of visits to the eye clinics of most of the large cities of the world. The book will contain about 400 pages, with many illustrations.

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It may interest the many friends of the late Dr. Wendell Reber to know that the author of the obituary article which appeared in last month's issue of the "Record" was Dr. Howard F. Hansell, who was co-editor with Reber in their book on Muscular Anomalies. They had also been for many years associated in various capacities in the Philadelphia Polyclinic.

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In the third annual report of the ophthalmic section of the Department of Public Health, Egypt, it states that the first ophthalmic hospital in Egypt was opened in 1904, and ten years later the number was sixteen. For the study of conjunctival diseases and the operative correction of deformities of the lids caused by trachoma, the opportunities afforded in these hospitals are unsurpassed in the world.

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On January 17th, 1917, a dinner was given at the Blackstone Hotel, Omaha, Nebraska, complimentary to Dr. and Mrs. W. L. Dayton of Lincoln, Nebraska, in honor of Dr. Dayton's election to the presidency of the A. A. O. O. L. Dr. Dayton is the Dean of Nebraska Ophthalmologists and Oto-Laryngologists and about thirty colleagues and their wives united at this time to express their appreciation of the honor conferred upon Dr. Dayton by the academy.

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At the eighth semi-annual meeting of the Sioux Valley Eye and Ear Academy, held at Sioux City, Jan. 23 and 24, the following officers were elected: Pres., F. H. Roost, M. D., of Sioux City, Ia.; vice-president, R. D. Alway, M. D., of Aberdeen, S. D.; secretary-treasurer, L. N. Grosvenor, M. D., of Huron, S. D. The guest of the meeting was Dr. E. V. L.

Brown, of Chicago, who presented two papers. There were six other papers. The next meeting will be at Omaha in July.

Applicants for the aviation branch of the military service in France are required to undergo a psycho-physiological examination for the purpose of determining in what fraction of a second, after having received a visual, tactile, or auditory impression, the subject under examination reacts. The tests are made with the Arsonval chronometer. It has been determined that a good candidate for aviation requires about 19/100 of a second for visual reactions.

The war has brought about a complete revolution in the training of the blind at St. Dunstan's, England. Self-pity is not countenanced, and the inmates are taught to accept their lot as an inconvenience but not as a grave defect, and are educated to regain their independence as quickly as possible. After several months' training the blind man is set up in business. No fewer than 125 men have been fully trained and settled in business for themselves. The work has been under the general direction of Sir Arthur Pearson.

That perennial device, purporting to enable the blind to see certain objects, has again turned up, this time in Pittsburgh, in the form of a "radium screen." A well known ophthalmologist of that city, after making a careful investigation into its merits, states that it is a fake, pure and simple. He adds: "The Standard Chemical Co. inform me that to their best knowledge and belief all the radium that the aforesaid possesses is some phosphorescent zinc sulphite incorporated with an infinitesimal amount of radium salt, and, to quote them, 'his screen is tommy-rot.' "

The need of a law requiring eye examinations of all drivers of motor vehicles is emphasized by a recent communication in the *British Medical Journal.* An ophthalmologist gives concrete instances showing how drivers with defective vision escape detection. Men with myopia of 12 D., with disseminated choroiditis, with nystagmus, and with occlusio et seclusio pupillæ from chronic iridocyclitis, were found driving vehicles on the crowded public thoroughfares. A yearly examination of the eyes should be made, because vision which may be good at the time of the original examination, may later become defective.

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The government of Australia is opposed to the legal recognition of optometrists. In a communication to the Optometrists' Association of New South Wales, a representative of the government made the following statement: "The department does not consider it advisable to officially recognize as an oculist any one except a duly qualified medical practitioner. A great deal of injury can be done by persons who are unskilled in diseases of the eye, in prescribing spectacles for defective sight which is due to disease and not to errors of refraction. Even general practitioners, if they have not worked at diseases of the eye, send their patients to a specialist."

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In New York the duties of an oculist in city service consist of the supervision or responsibility for the diagnosis and treatment of diseases, of physical abnormalities and other pathological conditions of the eyes, in hospitals, clinics, or other institutions. Twenty hours of service each week is generally required by the department. The position carries a salary of from $1,020 to $1,380 per annum and presents unusual opportunities for research and invaluable experience. During the year 1916, 239,074 children were examined in the public schools by the Medical Inspectors, of which number 23,422 were found to have defective vision. Of the latter 15,139 were treated by the oculists of the department.

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The minister of public instruction in France is studying means to resuscitate, after the war, the industries of optical instrument making and of optical glass making, which in the middle of the nineteenth century emigrated to Germany. In a report of the subject the minister states that the neglect of the theory of optical instruments in France has been the cause of the monopoly of this manufacture by Germany. Our manufacturers have not only been anticipated by the Germans in the search for new markets, but have also found themselves unable to rival our neighbors, because of the lack of sources from which to obtain the indispensable theoretical data. In order to coordinate these efforts, the minister is of the opinion that it is necessary to create an institute of applied optics. This institute would consist of three sections: (1) higher general theoretical teaching; (2) a central laboratory for the examining and testing of glasses and instruments, and (3) professional teaching. The minister of public instruction, co-operating with the minister of commerce, has set up a special commission of scientists, manufacturers and representatives of the administrations concerned, to prepare the statutes and the program of this institute.

## OBITUARY.

Dr. Morris Pitcher, Sardinia, N. Y., Jan. 17. Age 31.

Dr. Arthur A. Vibbard, Albany, N. Y., Jan. 19. Age 48.

Dr. Dexter B. Farnsworth, Springfield, Mo., Jan. 22. Age 67.

Dr. Horace B. Erb, Allentown, Pa., Jan. 24. Age 58.

## DEATHS ABROAD.

Von Zehender, formerly professor of ophthalmology in the Universities of Bern and Rostock. Age 91 years.

Lieut. Colonel Sir Frederick S. Eve, on Dec. 15, 1916. Formerly ophthalmic house-surgeon to St. Bartholomew's Hospital. At the time of his death he was vice-president of the Royal College of Surgeons of England.

Lieutenant-Colonel Arthur Nimmo Walker, the well known eye surgeon of Liverpool, was killed at the front on Sept. 24th. Dr. Walker's life work, like that of his father before him, centered around St. Paul's Hospital. He instituted wards for babies suffering from ophthalmia, together with their mothers. He was deeply interested in every aspect of ophthalmia neonatorum. He held appointments in various hospitals and was assistant lecturer in anatomy in the University of Liverpool.

The recent death of Augustin Charpentier at the age of 64 years, removes a notable figure from the field of investigators in physiological optics. He was born in Argentan-sur-Creuse, and at the age of 21 became assistant to Landolt, with whom he was associated for the next five years. During these years he made a special study of optics and experimental pathology, and was soon elected professor in the University of Nancy, in which position he continued up to the time of his death.

# CHICAGO EYE CLINICS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 A.M. | Richard S. Pattillo(P.-G.)<br>G. W. Mahoney (Poli.)<br>R. B. Stephenson (P.-G.)<br>Carl Wagner (E.E.N.T.) | *Geo. F. Suker (P.-G.)<br>C. H. Francis (Poli.)<br>A. Duncan (P.-G.)<br>A. G. Wippern(E.E.N.T.) | W. F. Coleman (P.-G.)<br>S. M. Hager (Poli.)<br>H. N. Lyon (P.-G.)<br>Carl Wagner (E.E.N.T.) | G. W. Mahoney (Poli.)<br>Rich'd S. Pattillo (P.-G.)<br>R. B. Stephenson (P.-G.)<br>A. G. Wippern(E.E.N.T.) | C. H. Francis (Poli.)<br>R. B. Stephenson (P.-G.)<br>J. A. Cavanaugh (E. E. N. T.) | S. M. Hager (Poli.)<br>C. W. Hawley (P.-G.)<br>H. J. Morlan (P.-G.)<br>A. G. Wippern(E.E.N.T.) |
| 10 A.M. | Brown Pusey (N.W.U.)<br>Geo. T. Jordan (N.W.U.)<br>Robert Blue (N.W.U)<br>Every day, 10-12 A. M.<br>Harry Gradle (E.E.N.T.) | J. R. Hoffman(E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman(E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman(E.E.N.T.) |
| 1 P.M. | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>E. V. L. Brown (County)<br>and<br>Geo. F. Suker (County)<br>Daily, 2:30 P. M.<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffmann (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>Oliver Tydings (E. E. N. T.) | W. Allen Barr (Inf.)<br>*Frank Allport (St. Luke's)<br>*Frank Brawley (St. Luke's)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>*PaulGuilford(St.Luke's)<br>*Casey Wood (St.Luke's)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>H. W. Woodruff (Inf.)<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>Oliver Tydings (E. E. N. T.) |
| 3 P.M. | *Wm. E. Gamble(U.of I.)<br>Wm. H. Wilder (Rush)<br>H. S. Gradle Daily<br>3-5 (E. M. D.) | R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.)<br>*Wm. E. Gamble (U. of I.) | Wm. H. Wilder (Rush)<br>R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.) | Geo. F. Suker (P.-G.) 2-5<br>H. Cuthbertson<br>A. Duncan |
| 4 P.M. | W. F. Coleman (P.-G.)<br>H. N. Lyon (P.-G.) 2-5 | C. W. Hawley(P.-G.) 2-5<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | J. B. Loring (U. of I.)<br>E. K. Findlay (U. of I.)<br>G. F. Suker (P.-G.) 2-5<br>H. Cuthbertson (P.-G.) | C. W. Hawley (P.-G.)<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | W. F. Coleman (P.-G.) 2-5<br>H. N. Lyon (P.-G.) | |

*Special operative eye clinic.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 1844 W. Harrison Street.

E. M. D.: Emanuel Mandel Dispensary, 1012 Maxwell St.

County: Cook County Hospital, W. Harrison and Honore Streets.

Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.

M. H.: Mercy Hospital.

Poli.: Chicago Policlinic and Hospital, 221 W Chicago Avenue.

P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.

N. W. U.: Northwestern University, 2431 Dearborn Street.

Rush: Rush Medical College, W. Harrison and Wood Streets.

St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

U. of I.: College of Medicine, University of Illinois, Congress and Lincoln Streets.

THE
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# CONTUSION OF THE EYE, WITH RUPTURE EXTENDING ACROSS THE OPTIC DISC.*

BY
EDWARD A. SHUMWAY, B. S., M. D.,
PHILADELPHIA, PA.

Contusion injuries of the eyeball by blunt bodies, without penetration of the eyeball or of the orbit, quite commonly cause rupture of the choroid, near the posterior pole of the eye. Such ruptures, as is well known, are usually crescentic in shape, generally on the temporal side of the optic nerve entrance, and concentric with the papilla. They may be single or multiple, and according to the severity of the injury, may be associated or not with laceration of the overlying retina. Involvement of the optic nerve, at its entrance to the eyeball, is very unusual, when there has been no invasion of the orbit, and because of its great rarity, the following case is placed on record:

G. D., aged 8 years, was admitted to the service of Dr. G. E. deSchweinitz, at the University Hospital, on August 17, 1916. He had been struck in the left eye several hours before by a stone, thrown by a playmate, at a distance of about fifteen or twenty feet. After the injury, he vomited a number of times, and became very drowsy and dazed, so that he had to be carried by his mother to the hospital, where he was at once admitted. There was no bleeding from the nose or ears. Examination showed contusion of the eyelids, and subconjunctival hemorrhage. The pupil was irregularly dilated and immobile, and the details of the iris below were blurred by blood in the anterior chamber.

No view of the eyeground could be obtained, on account of extensive vitreous hemorrhage, and vision could not be determined well, because of the child's mental disturbance, but was found later to be the ability to recognize hand movements. He remained in the hospital about two weeks; the mental condition soon cleared up, and when he was discharged, vision was still limited to the perception of hand movements which were seen only in the lower, outer, temporal field. As the blood was absorbed from the anterior chamber, an irido-dialysis about 5 mm. in length was found at the lower part of the iris periphery. In order to absorb the vitreous blood, he was given syrup of hydriodic acid, and was instructed to report regularly at the dispensary. Although the eyeground was still not visible, it was recognized that a serious injury had occurred to the posterior part of the eye, on account of the poor vision, and especially the limitation of the field. The vitreous hemorrhage slowly disappeared, and on October 19th a note by Dr. de-Schweinitz records the presence of a large mass at the outer side of the disc, probably exudate, and a patch of choroiditis beyond.

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* Read before the Section on Ophthalmology of the College of Physicians of Philadelphia, February 15, 1917.

On January 2nd, 1917, the vitreous had entirely cleared, and the condition was found, which he exhibits at present. Crossing the lower, outer quadrant of the disc, at an angle of 60 degrees, is a connective tissue band, which partly fills in a deep depression or cup at this border of the nerve head. The blood vessels are interrupted as they cross this area, and are considerably reduced in caliber below the line of the connective tissue band. Extending outward a good disc's diameter is an area of atrophy of the retina and choroid, densely white, and irregularly pigmented, the pigment being heaped up especially at the periphery of the area. The upper inner border of the nerve has a densely pigmented border, ⅓ d. d. wide, and there is a widespread area of superficial pigmentation, which extends several discs diameters downward and outward from the nerve, below the macular region. The optic nerve is atrophic, the upper inner portion retaining the best capillarity. In addition to the eyeground changes there is to be noted an internal strabismus, which, according to the child's mother, was not present before the accident. The outward movement is good but there is apparently some limitation of movement in a direction up and out, indicating that the strabismus is perhaps due to overaction of the adducting muscles following paresis of the inferior oblique, caused possibly by direct injury at the orbital border.

The important injury in the case is the tear across the nerve, and separation of the tissues at the level of its entrance to the eyeball. Rupture of the optic nerve in the orbital portion of its course, by injuries from the entrance of foreign bodies into the orbit, such as bullets, fragments of shells, the horn of a cow, prongs of a hayfork, etc., have been well known, and are mentioned in Praun's book on "Die Verletzungen des Auges" [1] which was published in 1899. Cases of complete or partial avulsion of the optic nerve from the eyeball by similar injuries have also been reported. Salzmann [2] described one from the Fuchs' clinic in 1903, which was due to a revolver shot, and he collected seven other cases from the literature. Another was reported by Gagarin [3] (fracture of the bones of the face and bilateral avulsion of the optic nerves, by blow of a horse's hoof). and one by Hepburn [4] in London, in which there was penetration of the orbit by the branch of a tree.

Rupture of the nerve head, where there has been no penetration of the orbit, or severe injury to the orbital bones, is, however, almost unknown. So far as I have found, in a search of the literature, there are only three cases on record, which are similar to mine. One was recorded by Treacher Collins [5] in 1914, in which a girl of 12 years was struck on the left eye by a bat. There was no perforating wound but considerable conjunctival edema and subconjunctival hemorrhage. A large retinal hemorrhage was seen just below the optic disc. Vision equalled finger counting at one foot. The lower inner part of the iris was tremulous, and the lens in that position was slightly dislocated backward. Later the eyeground showed the following appearance: "At the outer side of the optic disc, and extending partly across its margin to some little distance above and below, was a broad deep granular line. The lower part of the disc was pale and slightly cupped. The inferior nasal retinal vessels disappeared at the margin of the disc, around a lipped edge. The inferior temporal vein terminated in a convoluted fashion in the pigmented band and did not reach the optic disc. Vision was equal to hand movements only." The plate published shows an appearance quite similar to the one in my case.

Collins refers to a case which was reported by Lang [6] in 1900, as the only other one on record. In this, the disc, or rather the scleral ring, seemed to be divided in two by a sharply defined horizontal line, which separated the upper two-thirds from the lower third. The latter had the appearance of a coloboma of the optic nerve sheath, but its depth could not be measured. The upper portion seemed to have its lower border drawn backward. The inferior retinal vessels ended at the lower margin of the ring, where they were partly buried in a large retinal hemorrhage. The upper part of the field of vision was deficient. V. was 3/60. In this case the injury was the result of a blow by a clothes prop.

In 1914, E. Erskine Henderson[7] also reported a case in a boy, 15 years of age, who was struck on the right side of the face, by a parcel of bricks, thrown across the path in unloading a cart. There was a large contused wound involving the greater part of the right eyebrow, and a small part of the upper lid. There was blood in the anterior chamber, and no light perception. Two weeks later, clearing of the blood showed that the lower half of the disc had practically ceased to exist, and was represented by a hole, surrounded by considerable hemorrhage. The inferior vessels had obviously been torn across, and there was further hemorrhage in the macular region. There was also paralysis of the third nerve. Henderson thought that in Lang's case there had probably been perforation of the orbit by the end of the clothes prop, but that such had not occurred in his case. He believed the crushing blunt blow probably squeezed the orbital contents violently out, and so ruptured the nerve; or else that violent rotation, taking effect before the eye as a whole had time to move, could be thought of as a possible explanation. If Lang's case be excluded, because of possible penetration of the orbit, Collins' and Henderson's cases, both reported in 1914 represent the total number on record.

In my own case I think there is no doubt of the existence of a tear of the nerve, or of its sheath from the scleral tunic; there is a distinct cupping at the nerve margin, and the finely pigmented retinal tissue together with the band of connective tissue can be made out, crossing the gap at a higher level. The vessels apparently have not been torn completely across, although their caliber has been altered, but the complete loss of vision in the field, which was present from the beginning, proves definitely that the conductivity of the nerve fibers was immediately interrupted in the position corresponding to the later ophthalmoscopic findings. As to the mechanism of the tear, I think the more probable explanation in the case is that suggested by Henderson, that the sudden severe blow by the stone caused a violent rotation of the eyeball upward, and a separation of the nerve from its scleral attachment. It will be noted that the tear in each of the cases has been at the lower border of the disc. Microscopical examination has been made in several cases of complete avulsion of the optic nerve, and it has been shown that the tear is usually at the level of the lamina cribrosa. The loss of vision is of course permanent. I am indebted to Dr. deSchweinitz for permission to report the case.

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# REPORT OF A CASE OF PARINAUD'S CONJUNCTIVITIS

BY

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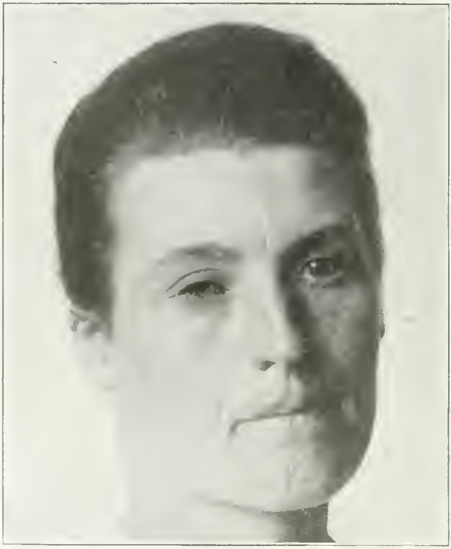
Parinaud's conjunctivitis is not a common disease and it is for this reason that I felt that this case ought to be reported. I, personally, have never seen a photograph in any textbook, monograph or reprint of this disease. This case would have been treated by me improperly diagnosed had it not been for my good fortune to have been a guest of Dr. Peter A. Callan at a meeting of the New York Ophthalmological Society in January, 1911, when Dr. R. G. Reese reported a similar case that had been referred to him from Virginia. Dr. Reese in reporting his case stated that it had been treated for trachoma and many other obstinate conjunctival diseases without avail.

Mrs. A. W. J., R. R. No. 3, West Alexandria, Ohio, aged 28, white, was referred to me by Dr. J. B. Lucas on June 28, 1916, with what he pronounced a purulent conjunctivitis of the right eye. Her family history was negative. About seven weeks before, her right eye had become red with a rather copious muco-purulent discharge. About three weeks after the onset of the conjunctivitis, it was noticed that the glands on the right side of the neck were swollen and quite painful on pressure. During this seven weeks her family physician ordered the eye flushed two or three times daily with a saturated solution of Boric Acid.

Examination:—Slight puffiness of the eyelids; conjunctival sac containing a small amount of purulent secretion. There was an excessive amount of lacrimal secretion without photophobia, a slight chemosis of bulbar conjunctiva with rather marked injection with granular formations on the upper palpebral conjunctiva. These granules were irregular in size, some being quite large with smaller and more numerous ones interspersed. All the granules were of a decidedly reddish color, more or less transparent on oblique illumination. There were no erosions or ulcers present.



Photograph Showing Pre-auricular and Cervical Adenitis of the Corresponding Side

The left eye was entirely normal. There was a marked pre-auricular and cervical glandular involvement, as the photograph well illustrates. The patient stated that these swellings had been rather painful at first, but at this time were not especially sensitive on palpation. There were no areas of necrosis but rather a firm indurated adenomatous condition. The adenitis, I believe, is pathognomonic of Parinaud's Conjunctivitis. It is the only conjunctival infection in which we have a secondary cervical adenitis of the corresponding side.

The bacteriological examination was made by Dr. M. B.

Floyd, and was as follows: "Cultures and smears were made from the conjunctiva. The smears appeared sterile, a few polymorphonuclear leucocytes were found, containing no organisms. Cultures were made on blood serum, starch agar, and plain agar. No growth noticed until forty-eight hours in incubator at 37 degrees Centigrade. All media presented few colonies bearing a close resemblance to each other. The colonies were elevated, clean cut, sharp edges, center being a little darker and thicker than the periphery. Organisms stained rather slowly with alkaline methylene blue and were Gram positive; stain showed many short rods arranged singly or in short threads. Organisms unstained showed marked Brownian motion but no motility. Smears and culture showed no gonococci, no bacillus Xerosis, no pneumococci, no bacillus pyocyaneous, no streptococci, no bacillus of Weeks or Morax-Axenfeld, no staphylococci, no micrococcus catarrhalis or bacillus diphtheria."

The short rod-shaped organisms to which Dr. Floyd referred may be the causative organism in this disease. The laboratory test was not concluded by the isolation and growth of the organisms and animal experimentation.

Rolandi is of the opinion that it is not a distinct morbid entity, but represents rather a clinical syndrome and in its classic form is a special type of tuberculosis of the conjunctiva characterized by an exceptional benign course and by spontaneous recovery. In conclusion he states, however, that it has not yet been sufficiently demonstrated whether this tuberculous form is due to human or bovine tuberculosis.

The fact that this case and practically all of those previously reported have occurred among people in the rural districts and who work around domestic animals, especially cattle, is sufficient evidence that they are a possible source of infection. This patient lived on a farm where there were horses, cattle, hogs and dogs, but no sheep or cats. It was her daily custom to milk several cows twice a day, which brought her into very close contact with this source of infection.

The distribution seems to be uniform throughout the temperate zone, and, as previously stated, confined almost entirely to the rural districts. I feel that there is no doubt as to its clinical entity and that it is due to a specific organism which so far has not been recognized.

The prognosis is good though the duration of the disease may be very much prolonged, extending over a period of six months or more. The duration in this case was about three months, without suppuration of the glands and without any permanent injury to the eye.

The treatment was very simple, consisting principally of a cleansing solution of boric acid with a weak solution of sulphate of zinc one grain to the ounce, together with plenty of fresh air, well-regulated diet, and a tonic, preferably Elixir of Iron, Quinine and Strychnine.

It is a positive mistake to use highly irritant agents such as copper sulphate, silver nitrate, etc., and especially the radical surgical treatment as is very often employed in the treatment of trachoma. The disease is practically self-limited and the best results will be had by the use of general cleansing, non-irritating collyria.

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# SOME CAUSATIVE FACTORS IN GLAUCOMA AS OBSERVED IN THE LONDON HOSPITALS DURING THE PRESENT HOSTILITIES.

BY
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The purpose of these few remarks is to draw attention to conditions repeatedly observed in the ophthalmic clinics and to show to what extent they influence the intra-ocular tension.

It is recognized that the immediate cause in every case of glaucoma whether primary or secondary is an obstruction in the path of the intra-ocular fluid. The remote causes in effecting this condition are various including constitutional diseases, as rheumatism, gout, nephritis, syphilis, and many others; disorders of the respiratory, vascular and nervous systems; injuries of many kinds, morbid growths, congenital imperfections and senile changes.

Most of the efforts heretofore have been made in an attempt to understand how the obstruction is brought about within the eye itself and perfecting surgical measures whereby permanent relief may be had from the immediate cause. These efforts have met with success but the important role the remote causes play in bringing about this condition has not received the attention that it should.

The object of this paper is to show in what way glaucoma is affected by the following conditions:

1. Reduced bodily resistance,—brought about by exces-

sive use of alcoholics, lack of nourishing food and proper shelter.

2. The presence of local infections as,—diseased tonsils, sinusitis, C. S. O. M., carious teeth along with constitutional diseases.

3. Constant mental strains and severe frights and exposures.

A few words concerning the habits and the conditions in which the poorer classes in London live will help in appreciating the clinical conditions found upon examination when they come to the clinics. In ordinary times the common laborer received but a small wage, from fifty to seventy-five cents a day and in order to live must deny himself and family many of the necessities of life. As a result one finds these people poorly nourished, clad and sheltered, and as a consequence of this their bodily resistance to any infection or extra strain upon their systems is markedly reduced. To make matters worse they indulge very freely in alcoholics largely in the form of ales and stout, these being a much heavier drink than the American beer. The women drink as much if not more than the men. Constitutional diseases of every kind are found but especially prevalent are rheumatism, constipation, nephritis, arterio-sclerosis, diabetes, and tuberculosis, as well as syphilis, and gonorrhea. They being careless and negligent of their physical conditions, we do not see them until the disease is well advanced and complications are numerous. Especially is this true of focal infections such as chronic discharging ears, diseased tonsils, dental caries, and ethmoiditis. The climate predisposed them to sinus involvement and it is safe to say that 95% have this trouble either slight or more severe. One will see case after case of pansinusitis with both nares filled with polypi in any of the nose and throat clinics. So will be noticed the large number of C. S. O. M. cases in adults, these being treated year after year with drops of various kinds and no attempt to relieve the condition unless urgent symptoms are present in the form of pain, cerebral, labyrinthine, or sinus trouble. As to the dental conditions, it is almost beyond one's conception how foul some of the mouths can become and give rise to no more pain or local symptoms than they do. It is not unusual to see two or three carious snags present and the rest of the mouth filled with necrosed stumps. Pyorrhea is very prevalent and it is so very seldom that one sees a good set of teeth that he has a tendency to forget or overlook the trouble that may be caused by even one diseased tooth. Any venereal disease is neglected to the same degree. It is necessary to enumerate these conditions to you in order that you may better understand ophthalmic findings and eye symptoms.

Here one sees directly the effects of the above state of affairs. Large numbers of phlyctenular conjunctivitis cases are present; iritis of various types mostly classed under the so-called rheumatic type; uveitis, scleritis, etc. Often the fundi will show markedly sclerosed vessels of a severe degree, exudates, hemorrhages, and thrombosis of central vein or its branches and of the arteries.

The most striking condition present is the large number of glaucomatous cases seen and the large percentage of acute symptoms amongst them. The wards were never empty of some of these cases and at times a large percent of the beds were taken up by glaucoma cases. This state of affairs has developed since the present war broke out. All the surgeons will say that glaucoma is from two to three times as prevalent as in times of peace. They are able to anticipate a sudden increase in number whenever there is a military disaster such as a Zeppelin raid or naval battle. Many patients will date the beginning of their dimness of vision or pain in the eyes to some Zeppelin raid, or to the news of the death of their son or near relative. Some will say that they noticed their vision failing soon after their boy was sent to the front and lay it directly to worry and anxiety. It is very manifest that the laboring classes are drinking to a greater excess now than in times of peace in spite of the shortening of the drinking hours. This is because the people are making more money than they ever dreamed of before and intend to enjoy it while they can. This idea is more prevalent among the women because most of the husbands are at the front and with no one to inquire as to what they do or how they spend their money they are enjoying themselves. Most of them work in munitions factories receiving good wages and have the government's separation allowance besides.

To me it seems that excessive drink is primarily the cause of the increase in the number of intra-ocular tension cases. In the first place money is spent for alcohol that should be used to properly clothe and feed the individual; and secondly, its deleterious effects on the constitution produce such havoc that it gives a greater opportunity for all the pathogenic organisms from the numerous gateways of infection, previously mentioned, to gain entrance into the general system or their toxins to become more active and injurious. Of these focal infections, the ones that should be given more consideration than we are in the habit of giving, are caries of the teeth, sinusitis, diseased tonsils and suppurating ears. Instead of being satisfied to give salicylates in a case of so-called rheumatic iritis the cause for the rheumatism should be thoroughly searched for. Likewise in any cases of uveitis, scleritis, etc., such a search should be made and in a large percentage of the cases, the cause will be found in one of these areas of focal infection.

Certain types of eyes recognized as being predisposed to glaucoma show increased tension when certain pathological changes take place within the eye, while the same changes might be found present in an eye not so predisposed and no increase in tension would be noticeable. Given a predisposed eye in an individual who lives a life as here described and whose physical condition is in such a deplorable state and the chance for him to develop a glaucoma is very much increased. Add to these conditions the fact that these people are under a constant mental strain and worry and subjected to extreme frights and exposure due to the war with its death roll, Zeppelin raids, etc., and you have all that is necessary to produce an ideal condition in favor of glaucoma.

Bearing the substance of these remarks in mind it should influence our methods of treating these cases in many instances. The two most popular means of relieving the increase of tension are the broad iridectomy and the trephine with the pendulum gradually swinging back in favor of the iridectomy. These operations will give immediate and as a rule permanent relief of the increased tension, it is true, but they are radical methods and in some cases may be called for to get the relief required. But there are many cases if put to bed and the usual routine of quiet, purgation, eserine and heat administered and if necessary, in acute cases, a paracentesis of the eye ball done to immediately reduce the tension and repeated if necessary, the eye will quiet down and the tension become normal. During this time the source of trouble can be located and will often be found in some focal infection such as the teeth, tonsils, nose, ears, gall bladder or appendix, and with the removal of the source and protecting the patient from any external influence that might affect his condition he will often be able to enjoy good vision for the remainder of his life. If for any reason we are unable to remove the source of trouble there is always plenty of time to submit to the radical measures but any one who is familiar with these operations and their results will be willing to try a more conservative treatment if it will produce results, and save the patient the risks of the complications that follow a trephine or iridectomy.

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# THE OCCURRENCE OF OCULAR DEFECTS AND DISEASES AT THE MASSACHUSETTS STATE REFORMATORY FOR WOMEN AT SHERBORN.

BY

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A great deal of investigation is being carried on at the present time in an effort to determine, if possible, the factors which have caused the delinquency of the inmates of our penal institutions in the commonwealth and throughout the country. Dr. Edith R. Spalding and Dr. Elizabeth Sullivan have done a large amount of work along this line among the inmates at the Massachusetts State Reformatory for Women, at Sherborn.

The following report has to do with the occurrence of ocular defects and diseases among 438 women, who were examined by the writer, at the same institution. It is only by gathering statistics from a large number of cases that we can hope to arrive at any definite conclusions which are of real value as to whether or not ocular defects have contributed very much in causing delinquency. To obtain these necessary statistics we need reports on this subject from the various penal institutions.

In this series of cases examination of the vision, without correction gave the following results:

Vision 20/20 in both eyes—103 cases.

Vision 20/20 in one eye and not less than 20/50 in the other eye—18 cases.

Vision 20/20 in one eye and not less than 20/100 in the other eye—3 cases.

Vision 20/20 in one eye and 20/200, or less, in the other eye—2 cases.

Vision 20/25 in both eyes—55 cases.

Vision 20/25 in one eye and not less than 20/50 in the other eye—8 cases.

Vision 20/25 in one eye and not less than 20/100 in the other eye—1 case.

Vision 20/25 in one eye and 20/200, or less, in the other eye—2 cases.

Vision 20/30 in both eyes—71 cases.

Vision 20/30 in one eye and not less than 20/50 in the other eye—18 cases.

Vision 20/30 in one eye and not less than 20/100 in the other eye—5 cases.

Vision 20/30 in one eye and 20/200, or less, in the other eye—4 cases.

Vision 20/40 in both eyes—25 cases.

Vision 20/40 in one eye and not less than 20/50 in the other eye—8 cases.

Vision 20/40 in one eye and not less than 20/100 in the other eye—5 cases.

Vision 20/40 in one eye and 20/200, or less, in the other eye—5 cases.

Vision 20/50 in both eyes—10 cases.

Vision 20/50 in one eye and not less than 20/100 in the other eye—2 cases.

Vision 20/50 in one eye and 20/200, or less, in the other eye—3 cases.

Vision 20/65 in both eyes—17 cases.

Vision 20/65 in one eye and not less than 20/100 in the other eye—8 cases.

Vision 20/65 in one eye and 20/200, or less, in the other eye—7 cases.

Vision 20/100 in both eyes—15 cases.

Vision 20/100 in one eye and 20/200, or less, in the other eye—8 cases.

Vision 20/200, or less, in both eyes—35 cases.

A further analysis gives us the following results:

126 cases have 20/20 vision in one or both eyes, or 28.8%.

66 cases have 20/25 vision in one or both eyes, or 15.1%.

98 cases have 20/30 vision in one or both eyes, or 22.4%.

If we combine the three classes given above it gives us a total of 290 cases, or 66.2% having not less than 20/30 vision in either one or both eyes.

The cases having 20/40 and 20/50 vision number 58, or 13.2%, and 90 cases, or 20.5% have 20/65 vision, or less.

Of the 438 cases examined 286 required refraction, either because of poor vision or because there were symptoms indicating possible trouble in the eyes.

Refraction gave the following results:

Emmetropia—3 cases, or 1%.

Hyperopia—93 cases, or 32.5%.

Compound hyperopic astigmatism—129 cases, or 46.1%.

Hyperopic astigmatism—19 cases, or 6.6%.

Hyperopic in one eye and myopic in the other—4 cases, or 1.4%.

Myopic—4 cases, or 1.4%.

Myopic astigmatism—2 cases, or 0.7%.

Compound myopic astigmatism—15 cases, or 5.2%.

Mixed astigmatism—17 cases, or 5.8%.

Presbyopia—44 cases, or 15.3%.

I will explain the above classification to prevent any misunderstanding. For example, all cases having compound hyperopic astigmatism in one or both eyes were placed in this class. If only one eye had this refractive error the other may have been simply hyperopic or had simple hyperopic astigmatism. Other cases were classified in like manner.

After refraction the vision was found to be as follows:

20/20 in 153 cases, or 54%.

20/30 in 94 cases, or 32.5%.

20/40 in 15 cases, or 5.2%.

20/50 in 10 cases, or 3.5%.

20/65 in 9 cases, or 3%.

20/100 in 2 cases, or 0.7%.

20/200 in 1 case, or 0.4%.

Less than 20/200 in 2 cases, or 0.7%. These were both cases of very high compound myopic astigmatism with fundus changes.

With the refractive correction there were 86.5% who had vision of not less than 20/30 in one or both eyes and 13.5% whose vision was 20/40, or less.

It is of interest to note the causes which prevented patients seeing normally with the correction. 3 cases were due to cataract, 4 cases to corneal scars, 3 cases to high myopia with fundus changes, 1 case to vitreous opacities and 1 case to optic atrophy. In the balance of the cases there was no evident lesion to account for the inability to obtain normal vision in at least one eye. The fact that there were some cases in which the vision could not be brought up to normal with the correction is not especially remarkable. It is not unusual to meet with cases, in both dispensary work and private practice, in which it is impossible to get perfectly normal vision, even in the absence of any demonstrable pathologic lesion.

Among the 438 women examined the following diseases and abnormalities were found:

8 cases of acute conjunctivitis.

2 cases of corneal ulcer.

4 cases of corneal scars which resulted from previous attacks of keratitis.

7 cases of acute iritis.

1 case of tubercular uveitis.

3 cases with adhesions of iris to lens capsule as a result of previous iritis.

1 case of acute choroiditis.

3 cases with choroidal atrophy and pigment deposits due to an old choroiditis.

1 case of coloboma of iris and choroid.

1 case of chronic dacryocystitis.

1 case of convergent strabismus.

From the above data can we draw any conclusions as to the role that abnormalities of the eyes play in the etiology of delinquency? To answer this question it will be necessary to consider the general conditions of the Reformatory population to a certain extent.

A large proportion of the inmates of penal institutions are mentally sub-normal. At the Sherborn Reformatory Dr. Edith R. Spalding and Dr. Elizabeth Sullivan made mental examinations of a series of 500 women and they found that there were 21% whose mentality was good, 13.6% fair, 20.4% dull and 45% subnormal and feebleminded.

Has defective vision any influence on the production of mental deficiency and if so how much? Mental examination of the 286 cases refracted gives 19.3% with good mentality, 17.8% fair, 15.7% dull and 47.2% below normal. Comparing the figures for the whole prison population with those who were refracted we find that for the latter there was a decrease of 1.7% with good mentality among those refracted and an increase of 4.2% who were fair and a decrease of 4.7% who were dull and an increase of only 2.9% for those who were below normal. The greatest changes occurred among those with fair mentality which showed a considerable increase for those refracted and a large decrease in the percentage of those who were classed as dull. The increase of 2.9% for those below normal is certainly not great enough to be at all striking. This would seem to show, if anything, that refractive errors and eye strain were not a very large factor in the production of mental deficiency among these people; but on the other hand the mental defectives constitute a very large part of those sentenced to the Reformatory. These women come from all over the state and are committed for all manner of offenses, from those of a minor nature to capital crimes and the sentences vary from a short term to life imprisonment.

Some of those refracted had worn glasses before being sent to the Reformatory and had left them outside. A few whose vision was very poor not only had not worn glasses, but did not realize that their sight was defective. Others had glasses and while a few had proper lenses a large proportion had glasses which were incorrect. The sources from which their glasses were obtained ranged all the way from those purchased at a bargain counter to those who had consulted competent oculists and had glasses made according to prescription.

Before we can arrive at any conclusions as to the role which ocular defects may play in the causation of delinquency other factors must be taken into consideration. There are the questions of heredity and hereditary tendencies, home influences, general environment, associations and the mental state of the individual.

A discussion of delinquency in general and the theories regarding it is outside the scope of this paper. It is a subject which looms large on our horizon and demands a great amount of study. That ocular defect is the essential factor in producing delinquency in any large number of cases I do not believe to be a fact. On the other hand I do believe that it is a strong contributing element in a certain percentage of cases because it may prevent the individual from having proper educational training in early life so that she is unable to obtain or retain employment in many vocations. It also produces a great deal of discomfort. This may cause discouragement and the person under these conditions may be more readily influenced by things which under more favorable conditions would not have produced any effect upon her.

If we may take the conditions at Sherborn Reformatory as a fair sample of the conditions in other penal institutions of the state, we can make the positive statement that a large proportion of the inmates of our reformatories and prisons require ocular attention, either the correction of refractive errors, or treatment of diseases which are of frequent occurrence.

The old idea that a reformatory or prison is only a place of punishment is obsolete. Of course, it is and must be a punishment, but this is, in the opinion of the writer, a minor function. The greater duty is to do everything possible to prepare these people to become useful members of the community and one must keep in mind the fact that most of them sooner or later are sent out to mingle with other people. We owe it to the state to try to make them capable of taking care of themselves properly.

These people require attention mentally, morally and physically. Among other things attention to the eyes is a very important matter, as shown by the very large percentage of the inmates who have some ocular disturbance. If it is possible to improve the vision it is worth while to do so as the individual can do better work, not only while she remains in the institution, but after she is discharged and she is also more comfortable.

**Summary.**

Ocular defects may be considered a contributing factor in causing delinquency in some cases, but the percentage is small.

Defective vision does not seem to play a very important role in causing mental deficiency among the inmates at the Sherborn Reformatory.

A very large percentage of the inmates require attention for correction of refractive errors or treatment of ocular diseases.

Abnormalities of the eyes should be remedied as far as possible as thereby the individual is better prepared to do her share of work at the Reformatory and what is more important she may care for herself better when she is sent out into the community.

# INJURY OF THE SYMPATHETIC IN ENUCLEATION.

BY

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The asymmetrical appearance of the face as the result of the enucleation of the eye, is cosmetically unsatisfactory to the ophthalmic surgeon. Certain disfigurements occasioned by the removal of the eye stimulate a desire to find the cause and to improve upon the technique of enucleation. This dissatisfaction with results has been productive of many improvements upon the original enucleation; still disfigurements remain in spite of many of these changes.

To offer an explanation for certain palpable facts that are noted after the enucleation, and the cause for same having been overlooked and, with a desire to stimulate an exactness as to the certainty of the observation, is the apology for this contribution.

After a successfully and an apparently excellently performed enucleation, one perceives in a predominant number of cases a loss of tonicity in the lower lid. A lid that you would expect to readily retain a prothesis, and hold the artificial eye well up and in a proper position, sags, principally at the external canthus. Repeated measurements made of this angle are convincing that it is a sign predominantly found and, contributing to the asymmetry of the face, is one of the disfiguring results observed. Many have offered suggestions for the correction of this drooping of the lid, but the cause for this loss of tonicity should be sought for, and not the correction of something that may be avoided. If the lids are put on the stretch, there will be seen at the outer canthus, a delicate fold of skin called the outer commissure, which connects the upper with the lower lid. At this outer canthus is the raphi palpebralis lateralis which connects the ends of the tarsal plates to the orbital margin. J. Hubert Fisher, in his Ophthalmic Anatomy, tells us of the unstriped muscular fibres which help to attach the tarsal plates of both lids to the orbital margin, hence, in paralysis of the sympathetic, one of the signs noted is that the lower lid sags, principally at the external canthus.

Following Jonnesco's operation for chronic glaucoma, where the superior cervical ganglion was destroyed, the drooping lid is noticed.

Another observation noted after the enucleation is a ptosis of the upper lid, with a drawing backward of the upper lid at the superior tarsal ridge or sulcus orbito-palpebralis superior. This drawing backward of the upper lid should be accounted for, and an explanation as to why there should be ptosis and a pulling in of the upper lid, should not be quickly disposed of, as is usually done but, we desire to offer a reasonable hypothesis for this alteration of appearances following enucleation. This objectionable ptosis and drawing in of the upper lid is not satisfactorily corrected by the insertion of the prothesis and leaves us with the belief that it may be cicatricial tissue which is drawing the lid in. Some explain that in endophthalmus where there is an actual depression of the globe into the socket, which is usually caused by a crushing blow, the backward displacement occasioned by the blow is made permanent by the cicatrical contraction that ensues. An explanation here advanced is that it is not cicatrical tissue that is drawing the eye into the socket, but it is caused by the fact that it is due to an injury to the sympathetic which nominally innervates the unstriped muscular tissues which hold the eye forward and in proper position. It may be associated with cicatrical tissue, but not essentially so. Some have attempted correction of this drawing in of the lid by transplanting fat under the lid at this spot, but there is little to be expected. It behooves us to have a clear understanding of the function of the Muscle of Mueller. This muscle is found lying on the under surface of the expansion of the levator, and attached to the upper margin of the tarsus. It is a group of involuntary fibres under the control of the sympathetic. The function of this involuntary muscle is to keep the skin of the lid and the palpebral conjunctiva smooth when the lid is raised, hence one may conclude how a paralysis would affect it, for when the lid is raised the skin is no longer held smooth and we have the appearance described above.

Another explanation is a study of the check ligaments which are processes from the orbital fascia and are inserted into the sclera near the tendons of the straight muscles. They preserve the useful purpose of preventing the overaction of the orbital muscles; they also prevent the eyeball protruding from the orbit following tenotomy of the recti.

When these check ligaments, which contain unstriped muscular tissue, are paralyzed, they become loosened and offer no assistance in holding the orbital contents in proper position, hence an injury that will destroy the function of these muscles will also produce atrophy and absorption of the orbital contents, hence permit the eye to sink backward.

If the above theory of Beer is correct then there can be no difficulty in explaining the sunken condition of the prothesis following the enucleation.

These observations have been carefully noted, and an injury to the sympathetic at the time of operation may occasion just such signs as mentioned above for we know that in paralysis of the sympathetic we have the palpebral fissure smaller in consequence of changed position of the upper lid; a ptosis of the upper lid in consequence of a paralysis of the smooth muscular fibres of Mueller, which are supplied by the sympathetic: and the appearance at the outer canthus, due to a paralysis of the intrinsic muscle at the raphi palpebralis lateralis and then the neuro-tropic change which produces absorption of the fatty tissues.

The sympathetic and ganglion branches in the orbit are numerous and to attempt to explain their location would add but little in elucidating the argument advanced, but yet it is opportune to review to a certain extent this sympathetic system of the orbit. The sympathetic nerve supply of the eye and its appendages comes through the superior plexuses which accompany all the arteries distributed to the orbit and surrounding region. The third nerve receives such a branch at its point of division; the fourth nerve as it lies on the wall of the cavernous sinus; the fifth from the Gasserian ganglion, the seventh at the stylomastoid foramen. Sympathetic filaments from the cavernous sinus pass through the sphenoid fissure. Terminal filmaments from the carotid and cavernous plexuses entwine round the ophthalmic artery where they accompany subdivisions of the vessels.

Having advanced the logical importance of injury of the sympathetic in enucleation, it would behoove us to note if these disfigurements do occur in all cases of enucleation and if greater care and surgical skill in the enucleation of the eye would prevent this sympathetic injury.

If this condition is preventable then how best to care for an eye that would demand enucleation? The Vienna operation which dislocates the eye on the face may tear asunder some of these small delicate sympathetic fibres.

Again, is this disfigurement to be prevented where the eye is eviscerated or the Mules operation performed? Following evisceration with a severe reaction in which the oedema is very great, may this not injure the sympathetic nerve, just as you would have an endophthalmus following an exophthalmus? In the Mules and Dimitry-Husinger operation, is it not a fact that it is free of these disfigurements?

In brief, in enucleation, the sympathetic is injured and produces certain disfigurements in a predominant number of cases, and to correct this fault we must demand greater skill and care, or require an improved technique in the enucleation of the eye.

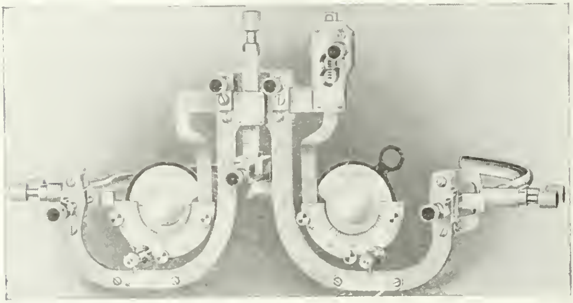
## A PRECISION TRIAL CASE AND TEST FRAME—THE LATEST OPHTHALMIC PRODUCT OF THE BAUSCH & LOMB OPTICAL COMPANY.

BY
CHARLES F. PRENTICE, M. E.
NEW YORK.

While it is very generally known and admitted that optical manufacturers in America were the first to standardize ophthalmic trial lenses, yet it may be news to many eye practitioners to learn that the Bausch & Lomb Optical Company is entitled to the credit for having recently produced the first standard trial lenses capable of being accurately adjusted before the eyes, by means of their ingenious so-called Ophthalmic Test Frame or Portable Phorometer. Of course, a few of us may take exception to the appropriateness of the latter name, but, as the parent is always accorded the right to name the offspring, criticism should be courteously withheld, especially as this instrument, in combination with the proper optical accessories, can be successfully used as a phorometer.

In the writer's opinion, it is the most accurately made and exquisitely finished instrument ever used by him to adapt lenses to vision, and will undoubtedly encourage the acquirement of that more profound optical knowledge and manual dexterity so necessary in ophthalmic practice. The practitioner who has never used it will naturally take a little time to become thoroughly familiar with it, but this trifling inconvenience at first will be more than repaid by the ultimate consciousness of his having done really accurate work, at least in so far as such can be said to depend upon the instrument itself.

The Portable Phorometer is designed to independently place the optical center or centers of one or more very thin plano-convex and plano-concave trial lenses of small aperture in perfect alinement with the visual axis of each eye. It essentially consists of a white metal front containing a pair of laterally adjustable lens-cells, adapted to hold even four superposed lenses, combined with a vertically adjustable nose-piece and a pair of slightly curved flexible steel temples, whose tension may be so regulated by thumb-screws as to comfortably cling to the patient's head, through lateral pressure at the back of the head above and behind the ears. Each temple, near the point of its attachment to the front, has a joint which is capable of being tightly clamped by a thumb-screw, in order to provide for the proper inclination of the lenses for reading at finite distances. Just in front of each temple-joint is mounted a milled head and graduated scale through which a transverse sighting device may be adjusted to measure the interpolar distance between the lens and the cornea of each eye. This is a very important provision, especially when menisci, contra-menisci, or Punktal lenses, designated in vertex-refraction, are intended to be used as the substituted lenticular corrections.



BAUSCH AND LOMB OPHTHALMIC TEST FRAME.

Moreover, graduated scales are provided to accurately measure, independently for each eye, the distance of the lens-centers above or below the crest of the nose as well as their respective distances on each side of it, at the moment the lens-centers are actually in alinement with the visual axes, and in which respect this portable phorometer differs from all other less efficient trial frames of usual construction. In order to insure this collimation of the poles of the lens and cornea of each eye, the trial set is supplied with a pair of transparent disks upon each of which a small circle and two diametrically intersecting lines are neatly etched upon plane glass, the actual pole or vertex of their intersection being indicated by a small dot in the center of the disk. The diameter of this Polar Disk is 15 millimeters, said dimension being the standard size adopted for all of the lenses, prisms and accessories in the trial set. The unusually small size of the lenses, etc., has made it necessary to mount them in thin enamelled metal disks with black rims, 30 mm. in diameter, to facilitate their being easily inserted in the cells of the trial frame. Exception to this style of mount is made among prisms, which are centrally attached to plane glass in black rims instead of the similarly bound metal disks. The surfaces of the lens-supporting disks are white for all convex lenses and pink for all concave lenses, and the powers of the lenses are plainly stamped in bold letters upon the face of each disk, which is uniformly black on its reverse side.

It will be readily appreciated that this unique style of lens-mount is much superior to the usual metal rim, which, after its plating has worn off, makes it difficult, at a glance, to distinguish between a convex and a concave lens that may have been misplaced in the lens-tray.

Further precaution has been taken to engrave the axes of the cylindric lenses upon the edges of the lenses as well as upon the faces of the disks into which the lenses are tightly bezelled. Moreover, the cylinder lens-mounts are not provided with handles, so that obstruction is not present to prevent the cylinder from being given any desired position during rotation in the graduated trial-frame cell, where a projecting milled head and friction pinion deftly facilitate adjustment of the cylinder's axis to an unprecedented degree of precision. In fact, it has now become an unexpected fascination and pleasure to me to correct astigmatism with this unique instrument, and which is sure to similarly appeal to practitioners having a true regard for scientific exactness.

It being known that the position of the principal points, through which the actual power of an ophthalmic lens is determined, varies with the power and shape of the lens, it is necestary to provide against such variation. To be more specific, in biconvex and biconcave lenses the principal points are separated by one-third of the lens-thickness; whereas, with the plano-convex and plano-concave forms one of the principal points is upon the curved surface, while the second principal point is within the lens at one-third the thickness of the lens, measured from the center or pole of the curved surface. Recognition of these differences led the B. & L. Co. to introduce the vertex system, in order that the refractive error of an eye may be estimated by the power of the correcting lens whose focal length is measured from the pole (vertex) of the lens-surface facing the eye, instead of from the second principal point, the true reciprocal of the actual dioptral power. Therefore, the B. & L. Ophthalmic Test Lenses consist of plano-convex and plano-concave lenses of uniform minimum thickness in the center for all powers, whether spheric or cylindric, so that, for any combination of lenses in the test frame, the principal planes always occupy the same definite position within its cells, whatever the combinations may be.

Since the spheric powers are always to be used with the curved surface facing the eye of the patient, and the plane surface of the cylinders is placed adjacent to the plane surface of the spheric powers, the principal planes within these lenses are at equal distances from each other for all possible combinations. Consequently the effect of the cylindric lens is constant and equal to the power indicated on the lens-mount, irrespective of the spheric power to which it may have been added. Hence, an ophthalmic lens of any desired form may afterward be practically substituted in any prescription that is secured through the visual test made with trial lenses of this unique type, since, in both visual corrections the vertex-refraction and the optical effectiveness are the same, provided their vertices are at the same distance from the cornea of the eye.

Therefore, it is evident that this desired equivalence of the refractive powers can not be secured when the ordinary biconvex and biconcave trial lenses are used, and simply because the increased thickness of the bispheric lenses, together with the entailed air-space between them and the cylindric lenses in the trial frame, effect a different position of their principal planes before the eye than that of the supposed equivalent lens subsequently made by the optician in executing the written prescription. Of course, such discrepancy is increased when the optician substitutes menisci, contra-menisci or toric lenses, since their principal planes lie in quite different positions, namely, with the meniscus the principal planes are in front of the lens, whereas, in the contrameniscus they are behind the lens. Consequently, their focal planes can not coincide with the focal plane of the bispheric combination in the trial frame, nor with the farpoint of the eye whose error the combination is intended to correct.

On the other hand, with the vertex-refraction system, the new trial-case lenses and any substituted form of ophthalmic lens of the same dioptral number have equal refractive powers at a fixed interpolar distance in front of the eye, thus insuring absolute equivalence, regardless of the type of lens afterward substituted for the trial-lens combination.

The trial case contains:

1. Forty pairs of spheric convex lenses and forty pairs of spheric concave lenses, numbered in eighths from 0.12 D. to 1.75 D., thence by quarters to 3.5 D., thence by halves to 8 D., and thence by units to 20 D.

2. Twenty-eight pairs of convex cylindric lenses and twenty-eight pairs of concave cylindric lenses, similarly numbered between 0.12 D. and 8 D.

3. Eighteen prisms, numbered $\frac{1}{2}^{\Delta}$, $1^{\Delta}$, $2^{\Delta}$, $3^{\Delta}$ and $4^{\Delta}$, in pairs, the remainder being numbered $5^{\Delta}$, $6^{\Delta}$, $8^{\Delta}$, $10^{\Delta}$, $12^{\Delta}$, $15^{\Delta}$, $18^{\Delta}$ and $20^{\Delta}$ (prism-dioptries).

4. Two polar disks, two pin-hole disks, two stenopeic slits, two Maddox rods (red and white), two crossed contra-generic 0.25 D. cylinders and two crossed contra-generic 0.50 D. cylinders, one pair having handles, the other without handles; one Maddox prism, one +12 D. cylinder, one opaque disk, one ground glass, one red glass, one green glass, two blue glasses and two smoke glasses in shades B and D, repectively.

These complete sets of trial lenses are at present being supplied in three styles of assemblage, namely, a portable leather-covered case; a white enamelled wood cabinet, with drawers for accessories and a receptacle for the portable phorometer; and a white enamelled metal sanitary cabinet, similarly planned, but provided with disinfecting arrangements.

The German Central Book Station for the Blind was opened in Leipzig in December, 1916. Enough books have been provided to supply the demand for twenty years. Every field of study is represented—philosophy, pedagogy, history, geography, law, political economy and civics, art, history of art, literature, biography, medicine, reference works, history of literature, war literature, music, and the study of music. There is also a large reading room containing periodicals of all kinds. A special room is provided for music literature and a completely equipped print shop, as well as a large store room.

## A CLINICAL CONSIDERATION OF MIGRAINE.

BY

JOHN A. LITCHY, M. PH., M. D.

PITTSBURGH, PA.

Migraine is considered by the author as the most frequent headache, occurring in 700 of his 15,000 patients sick from all causes. He believes that the so-called acidosis in children may often be a forerunner of a well established sick headache habit. The interesting relation between migraine and epilepsy deserves further study. Among the author's 15,000 patients epilepsy occurred in 7, and both migraine and epilepsy in 70. Auerbach's theory which attributes migraine to an actual disproportion between skull-capacity and volume of brain, needs further proof. In the International Clinics for December Dr. Litchy, shows that the diagnosis is easy when there are headaches which are unilateral, periodical and hereditary, but when only one or two of these symptoms are present, or when there is only a periodicity of some of the minor symptoms or possibly of the aurae, the diagnosis may be difficult. Migraine is frequently mistaken for pelvic disease, for acidosis or cyclical vomiting in children, and organic disease, when some of the aurae are present. The psychasthenic and the gastric symptoms frequently lead to confusion in diagnosis. While the underlying causes of migraine are vague and furnish little light as to treatment, much can be done to ameliorate the symptoms by proper handling of the exciting causes that aggravate the patient's general condition and precipitate the attacks. Most thorough investigation and careful individualization are indicated. Systematic administration of the bromide salts and avoidance of undue fatigue are especially recommended.

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Charles E. Comstock, Illinois State Superintendent of Visitation and Instruction of Adult Blind, has more than seventy-five classes in various parts of the State reading moon type and reading and writing full and contracted Braille, studying embossed short-hand, operating dictating machines, type-writing, chair caning, basketry, hand and machine sewing, crocheting, tatting, fibre strand chair weaving and using the Danish loom. Broom-making and piano tuning, the best paying trades of blind men, are also taught.

# REPORTS OF SOCIETIES

## WILLS HOSPITAL OPHTHALMIC SOCIETY.

SAMUEL D. RISLEY, M. D., CHAIRMAN.

DECEMBER 4, 1916.

### Synchronous Movements of Eye and Jaw.

Dr. Paul H. Kleinhans presented a boy 11 years of age with synchronous movements of eye and jaw. The mother had noticed from birth that the upper lid of the right eye drooped and some years later it was remarked that the movements of the mouth in chewing were always connected with an up and down movement of the right eyelid. There was no family history of a similar anomaly.

Examination showed in the primary position, almost complete ptosis of the right lid. On opening the mouth, the lid shot up. Lateral movements of the jaw had no effect on the lid. Examination showed insufficiency of the right superior and internal rectus muscles. There were no fundus changes, and vision in each eye was normal.

*DISCUSSION.*

Dr. W. C. Posey said that cases of this nature were quite rare, and recalled a case of a Hebrew girl, 17 years old, whom he had reported to the College of Physicians some years previously. In this case the right lid had drooped from birth and it was elicited that since earliest childhood it had been remarked that when she chewed or rotated her jaw, the lid of the right eye would move up and down. There was an associated overaction of the right superior rectus muscle, due to insufficiency in the right inferior rectus.

Dr. Posey said that Sinclair, who had written an able treatise on the subject in 1895, had found the most common class of cases of this kind to be those in which certain movements of the lower jaw are associated with an upward movement of the upper eyelid. In this class, there is one-sided congenital ptosis, with or without paresis of the superior rectus. The drooping eyelid can not be voluntarily raised, but is vigorously raised when certain movements of the lower jaw occur. Sinclair further subdivided the cases in this series into four sub-heads:—

Group I.—Cases of one-sided congenital ptosis in which the drooping eyelid is raised both when the mouth is opened (digastric) and also when the jaw is directed to the opposite side (external pterygoid).

Group II.—Cases of one-sided congenital ptosis in which the drooping eyelid is raised when the jaw is depressed, but is not raised with lateral movements of the jaw.

Group III.—Cases of one-sided congenital ptosis in which the drooping eyelid is raised with lateral movement of the jaw (external pterygoid action), but not with simple opening of the mouth.

Group IV.—Cases in which similar associated movements of one upper eyelid with movements of the lower jaw occur, but in which there is no ptosis.

The explanation of the association is difficult and must be purely hypothetical, as no cases as yet have come to autopsy. The theory which is usually accepted is that the levator receives nerve supply from the motor nuclei of the fifth nerve as well as from the nuclei of the third. Others have thought of a nuclear connection between the third and seventh nerves, and there are still others who presuppose a connection between the nuclei of all three nerves. While there is ground for belief in the imperfect development of the third nerve nuclei in a number of the cases, as is evidenced by insufficiency in the action of superior and inferior rectus and other muscles supplied by that nerve, this is not true of all, for, as has been stated above, other cases have been cited where all the muscles supplied by this nerve performed their functions normally, the associated movements between the lid and jaw being the only anomalous conditions present.

Dr. William Zentmayer noted that when the gaze was directed below the horizontal plane the left palpebral fissure became of the same width as that of the right side and continued so in complete infraduction. Associated movements between the eyes and other facial muscles, especially between the orbicularis and the alae of the nose are said by Harmon to be very common. Dr. Harlan, some years ago, showed a case allied to the one now exhibited in which blepharospasm was induced by jaw movements.

Dr. Burton Chance said that the number of cases exhibiting jaw winking are so few that every opportunity should be taken to place on record any instances of the syndrome whenever they occur. The case exhibited today recalled to his memory one which he had had in his private practice a number of years ago, all the features of which he could not exactly recount, but it differed from today's case, and from the majority of those systematically reported, in that instead of there being present a ptosis which disappeared when the mouth was opened, his case showed drooping of the lid during mastication. The patient was a comely lady of 19, in whom the defect could not be observed except when she was eating.

### Monocular Trachoma.

Dr. Zentmayer exhibited a case of Monocular Trachoma which was in the early cicatricial stage, and on which he had performed the Kuhnt-Heisrath Operation. The result has been very satisfactory; a dense pannus which had previously been present having almost entirely disappeared.

Dr. Zentmayer said that he had now performed this operation in cases representing all the stages of trachoma except that of advanced cicatrization. and in every instance the result had been gratifying.

### Tuberculosis of Anterior Segment of Globe.

Dr. Zentmayer exhibited a case of Tuberculosis of the Anterior Segment of the Globe. The patient was a married woman 32 years of age. Pregnant 3 times. First time had abortion performed because of exhaustion from vomiting. Second, child born dead. Third, miscarriage at 3 months. Wassermann and provocative Wassermann both negative. Wassermann upon her husband also negative. Vaginal smears and cultures negative. v. Pirquet negative. Had an abscess of impacted molar which was removed. Had exophthalmic goitre. Gland removed Jan. 1915. In R. E. there is a tongue shaped area of haze in the cornea, superficially vascular. Pupil irregular from almost complete posterior synechia. Delicate fibrinous exudate on anterior capsule. Mutton fat drops on Descemet's membrane. Ant. chamber shallow. Fundus negative. L. E. much the same condition. A. C. deep.

The patient had been under very energetic and appropriate treatment by Dr. Weinberger of Sayre to whom Dr. Zentmayer was indebted for the previous history of the case, but the condition had not progressed favorably.

### Congenital Cataract.

Dr. Zentmayer reported a case of Congenital Cataract in which following a second discission of the lens, the nucleus dropped into the anterior chamber and was removed by passing a keratome into the anterior chamber behind the nucleus, making slight pressure upon the cornea as the keratome was pressed back allowing the nucleus to escape along the blade of the instrument. Notwithstanding that the pupil appeared round there was a slight attachment of the iris to the corneal scar. Ordinarily Dr. Zentmayer preferred to treat congenital cataract in children by repeated discissions. He considered this method to be the safest one and he did not think that the element of time required for absorption of the lens should be considered a serious objection to this method when other procedures risked the loss of vitreous and prolapse of the iris. The method proposed by Dr. Posey required a preliminary discission, a linear extraction and doubtless often a final capsulotomy, as many operations as are ordinarily required by simple discission.

*DISCUSSION.*

Dr. S. D. Risley said there were many things to consider in the management of so-called congenital cataract; that his experience showed in the majority of cases the opacity was not present at birth but had come on during the first few years of life. In very many instances, after the removal of the opaque lens and capsule, choroidal disease was revealed and was obviously the cause not only of the opaque lenses but of the failure to secure good vision even by the most successful operations. He had seen endarteritis, extensive choroidal atrophies, and disseminated absorption areas. The cataracts, therefore, were to be regarded as part of a vicious inheritance which was seen later in the abnormal development of the teeth and other evidences of impaired nutrition. Therefore a cautious prognosis should always be given. As to the methods of procedure for the removal of the opaque lens he had adopted as the operation of choice that described at the last meeting of the Society; i. e. a vertical incision in the capsule and anterior cortex, and 24 to 48 hours later the insertion of a keratome at the upper corneal limbus, the point of the instrument being carried into the substance of the lens making a section at right angles to the previous wound in the capsule. The instrument being then slowly and partially removed, the point pressed backward so as to prevent the prolapse of the iris but allowing a slight gaping of the corneal wound, thereby permitting the escape of the opaque flocculent cortex over the anterior surface of the keratome. It is true that in the group of cases shown at the previous meeting of the Society two of them exhibited a slight anterior synechia at the upper angle of the anterior chamber, but whenever this occurs it is due to a fault in technic. After the extrusion of the cortex in the manner described, he had usually inserted a small flexible spatula and with gentle pressure stroked the iris, pressing out from behind it any cortex which might remain. This he had neglected to do in the two cases seen by Dr. Zentmayer and it was probably the slight pressure by this mass back of the iris which led to the adhesion of the latter to the wound. He would hesitate to return to the tedious method of frequent discission of the lens which he had employed for so many years, and with the defects and advantages of which he had long been familiar. The lessening of the days spent in the hospital, the better results obtained, and the freedom from the dangers of repeated needlings, made, in his opinion, the procedure he had described the one of choice.

Dr. Chance was much impressed by Dr. Risley's belief that the general health of the average subject of congenital cataract is not good, but frequently presents dyscrasias, vascular disease, or other depressing factors. And, in confirmation of this belief, Chance offered his observation of the difference between the recovery from the effects of traumatic cataract in young subjects, and the dissolution after operation on cataracts congenitally formed. He has been frequently surprised by the apparent ease with which disintegrated lenses in aseptic cases have been absorbed, whereas most carefully needled lenses may require months for absorption, being frequently accompanied by inflammatory symptoms.

Dr. Posey said that it was his custom to needle the lens quite thoroughly and to remove the swollen lens matter a few days later by curettement, making an incision for this purpose about 2 mm. from the limbus of the cornea in the horizontal plane, the lens matter being caused to extrude by inserting a cylinder Daviel spoon in the opening and keeping the instrument in a plane with the iris. Often the entire lens mass might be removed by this simple method. In other cases, a later discission of any remaining lens substance was necessitated.

He thought it best to defer operating, in cases of congenital cataract, until the age of 3 or 4 years had been attained, for the longer the surgeon waits the more the eye develops and the more apparent does the exact nature of the lenticular opacity become, and the dressing and bandaging of the eye is easier and there is less danger of infection.

Sometimes attempts at needling are frustrated by the tenacity and density of the lens capsule. Good results can be obtained in this class of cases by the displacement downwards of the opaque tissue. He advised, however, an attempt at needling in the usual manner in even these cases, for the discission serves as an exploratory procedure, enabling the operator to judge of the consistency of the tissue with which he has to deal and at the same time exposes whatever lens matter may be present to the solvent action of the aqueous humor. Displacement should be resorted to only when needling fails and a tough resistent substance still blocks the pupillary area.

Dr. Frank Fisher said that for rapidity of recovery, safety and final good result the best method of dealing with congenital cataract is by free discission followed in 48 or 72 hours by complete curettement. With a Hayes' knife the lens can be thoroughly divided in different directions—broad rents being made in the anterior capsule and preferably in the posterior capsule also—exposing as much as possible of the lens matter to the aqueous. In 48 or 72 hours thereafter—depending upon amount of cortical swelling and the tension created thereby—do the curettement.

Two or three millimetres from the upper limbus is the point of election. A broad needle, bent on the flat, yields best result, with which an incision from four to five mm. is made parallel to the limbus. A Daviel curette introduced with point well to the centre of the pupil and well back of the level of the iris and with slight backward pressure against the upper lip of the wound will begin the evacuation of the chamber. Gentle pressure upon the lower cornea with spoon or spatula, while the curette remains in the chamber, will complete the entire removal of the lens matter.

The presence of vitreous in the hyaloid fossa, or in the aqueous chamber during or after the needling or even in the corneal wound during the curettement is a negligible factor, so far as results are concerned, provided the wound is thoroughly cleared of shreds of hyaloid before closing.

If the cataract is of nuclear form originally it frequently happens that the harder nucleus is forced forward into the aqueous chamber by the swelling cortex after needling. This need not be regarded as a complication—the small mass being easily removed during curettement—and by the same process.

My experience favors early operation for congenital cataract yet it should not be done earlier than the second year.

There is usually so little reaction after either the needling or the curetting that small attention may be given to bandages after the first 24 hours—merely slight protection being required.

Inquiry should always be made as to family history. Frequently more than one in a large family of children is afflicted with congenital lens trouble. In three generations of one family congenital cataract occurred as follows—first generation—three members—one case—second generation—five members—two cases—third generation—six members—two cases.

**Iris Anomaly.**

Dr. Chance presented a case of imperfection of the iris which he considered to be allied with polycoria, and not unlike, in certain respects, the case exhibited by Dr. Schwenk at the last meeting. In the case shown today, there was the remote history of inflammation of the left eye in an Italian girl of 11, in her early childhood, who had been sent to the hospital by the school physician. There was present a linear cicatrix or opacity in the cornea which doubtless interfered so much with the sight that the physician had regarded the case as one which required refraction. There were no visible signs of connection between the corneal nebula and the iris, neither were there evidences of disease of the lens, the choroid, or the retina. On casual inspection, there appeared to be a horizontal coloboma at the outer side, which, on closer inspection, was found to consist of imperfectly developed superficial layers of iris, with a dense hyperplastic over-development of the deeper fibrous layer. The fibers extended quite visibly for some distance above and below the main aperture, and shone through the feebly developed overlying layers, which condition was not distinctly seen at some distance from the eye. In addition, directly opposite at the nasal side, there is a circular aperture, which, when the ophthalmoscope is used, transmits the light through a distinctly fibrous background. In the right eye in an exactly corresponding position at the nasal side, is a similarly rounded area which has the appearance of being only the deepening of a crypt, and does not transmit the fundus glare. Atropia effected complete mydriasis when the eye was found to be entirely normal. Atropia in the left caused contraction of the nasal pillar, but apparently had no effect on the temporal.

**Operation for Contracted Socket.**

Dr. Chance desired to show the immediate effects of an operation which he undertook two days before for the repair of a contracted socket. The patient is the woman upon whom he performed the "Maxwell" operation to affect the lower lid, exhibited before the Society a year or so ago. The "Maxwell" procedure had yielded most satisfactory results insofar that the lower lid, instead of extending far into the floor of the orbit, had become sufficiently everted to give room for a modified glass eye. The transplanted island of cheek tissues had increased the cavity of the orbit in that locality by so much as the dimension of the island. The upper lid was so distorted and so matted and drawn up into the orbit, that the "Maxwell" procedure could not be considered suitable; but by the advice of Dr. Schwenk and with his assistance and direction he determined to undertake that procedure which Dr. Schwenk devised for the relief of a case under his care in December, 1915, the principle of which consisted in the separation of the mucous membrane adherent to the orbital mass, by a submucous dissection, together with the subcutaneous dissection of the skin of the lid from the tarsal tissues, and in connecting the cavities thus formed by severing the intervening tarsal tissues. A new cul-de-sac was formed by uniting the interior surfaces of the mucous membrane and of the skin by means of three mattress sutures. An elliptical-shaped piece of sheet-lead was then inserted into the mucous cavity. Bandages were applied, and today, on the removal of the lead "conformer," a quite freely movable lid is present behind which is a distinct cul-de-sac.

### Sudden Blindness of Unknown Origin.

Dr. S. D. Risley reported a case of sudden blindness which had applied for treatment at his clinic a few days before. The man (a young Italian) had gone to bed in the evening without any impairment of vision, but woke in the morning totally blind. The ophthalmoscope revealed no cause for the man's misfortune. Investigation brought out the fact that for two weeks the man had been drinking a beverage which seems to be a favorite with the laboring men among the Italians, and which is made up of a quart of alcohol, one pound of granulated sugar, and three quarts of water, to which is added the contents of a two-ounce bottle of extract called "Rosa Rossa". (Red Rose), red in color, the chemical nature of which was not ascertained. This mixture is boiled and used as a beverage. It occurred to Dr. Risley that wood alcohol might have been used in composing the mixture, but a specimen shown by the man's wife, who had purchased the ingredients, proved to be grain alcohol. As soon as inquiry about the alcohol was made she became suspicious, and there was room for doubt as to whether the specimen furnished was the same as that employed in the mixture. No other cause for the sudden onset of blindness could be discovered.

### Dislocation of Lens.

Dr. Posey exhibited a case of dislocation of the lens into the anterior chamber in a man about 60 years of age. There was a subluxation of the lens of the other eye, due to a congenital weakness of the zonule of Zinn, a brother, about the same age, showing a similar weakness in each eye. Dr. Posey proposed to remove the lens from the anterior chamber by a linear incision.

Harold W. How, Secretary.

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## CHICAGO OPHTHALMOLOGICAL SOCIETY.

WILLIAM E. GAMBLE, M. D., PRESIDENT.

December 18, 1916.

### Sinus Disease as an Etiological Factor in Iritis.

Dr. E. E. Irons and Dr. E. V. L. Brown contributed a joint paper on this subject. In 100 cases of iritis studied etiologically for luetic, gonococcal, tuberculous, dental, tonsillar, sinus and other infections, the authors found abnormalities of sinuses suggestive of infection in 18 cases, but considered sinus infection the etiologic factor only in the 3 cases given below. In the other 15 cases the etiologic factor was considered to be luetic in 6, gonococcal 1, dental 1, tonsillar 1, and so combined that no one factor could be considered the certain factor in 6.

Case 1, housewife, aged 45. Left acute iridocyclitis; duration 3 weeks; relieved by atropin, etc. Just previous to the eye trouble the patient had had a cold, with nasal discharge. Frontal sinusitis was found clinically and by x-ray. Slight tonsillar infection was noted in one tonsil. No clinical or laboratory evidence of dental, luetic, gonococcal, or tuberculous infection could be found (1, 3 and 8 mg. O. T.). Tuberculin used under careful control and after due consideration of the general condition of the patient. Treatment of the sinus was refused.

Case 2. Printer, aged 34. Bilateral chronic iridocyclitis, duration off and on since 9 years of age. Pansinusitis, but no other evidence of active tonsillar dental, luetic, gonococcal or tuberculous infection could be found on careful clinical and laboratory study (7 mg. O. T.). Three weeks atropin treatment had no effect upon the pupil or the "rose-flush." Operative sinus treatment was refused.

Case 3. Male, aged 20. Left chronic serous iridocyclitis began in February, 1913. The right antrum had been drained 7 months before. After the tonsils were removed in August, 1913, the eye condition improved, but during 1914 there were repeated exacerbations, with occasional periods of fever, sub and intracutaneous and intramuscular tender nodules, but no change in the slight presystolic apical heart murmur, during two years of observation. Blood cultures during three of exacerbations remained sterile. The teeth were normal and there was no clinical or laboratory evidence of luetic, gonococcal, or tuberculous infection. (1, 3, 7 mg. O. T.). A complete re-examination during a recurrence in August, 1915, revealed an active antrum infection. The antrum was drained and cultures of the pus showed a slightly hemolytic streptococcus. The eye improved. A suspension of 100 million killed streptococci was injected subcutaneously as a test of sensitiveness to this organism. Forty-eight hours later right ciliary injection became more marked and the clear left eye became red. This reaction lasted 40 hours and then subsided without local treatment. Four days later the procedure was repeated with a smaller dose and after 24 hours the same reaction appeared in the right eye, with some pain, but no redness in the left, and subsided within 72 hours. Feb. 2, 1916, the patient reported the eyes improved, and the rhinologist stated that the sinuses were clear of infection. In this patient the evidence seemed fairly clear that the source of the recurrences of the iridocyclitis was a persistent infection of the sinuses.

*DISCUSSION.*

Dr. Alexander S. Rochester said that the cases reported by the essayists reminded him of a case which he treated some months ago, particularly when the essayists spoke of the possibility of not finding a present sinus trouble. He saw the patient in his third attack of iritis within a period of two years. In each attack the patient was taken care of by a competent oculist, a different oculist each time. Each time he had been referred by the oculist to a rhinologist, but examination of the nose had not disclosed any sinus trouble. Each time the patient had had a "cold' in the nose at the time the iritis came on. Each attack lasted for several months, and with the usual treatment of atropin, hot applications and sodium salicylate the eye had gradually cleared up, the patient being told he had had rheumatic iritis. When patient consulted the speaker he had an iritis which had begun three or four days before. In examining the nose he used the suction apparatus which Brawley had spoken of and which he thought was of great value. The first day he was not able to find anything pathological in the nose at all. He used atropin and hot applications, and the next day the patient's eye was worse. On examining the nose again and putting the patient on the suction apparatus for a while, at the end of about twenty minutes some pus escaped from the anterior ethmoidal region. Within several hours after this, the eye was very much better and in two or three days quieted down. He kept up the use of the suction apparatus and the eye became completely quiet, and later on he opened up the ethmoid so as to establish drainage. He thought the suction apparatus was of great value in the diagnosis of these cases, as well as of great aid in their treatment where it was necessary to use conservative methods.

Dr. Harry S. Gradle asked whether Dr. Brown considered the iritis in sinus disease an infection or a toxemia.

Dr. Brown said he considered it to be an infection transferred by the circulating blood.

Blood cultures had been made in the last case but were all negative.

Dr. Michael Goldenburg mentioned a condition in point where it affected the optic nerve. The wife of a dentist developed a unilateral neuro-retinitis, which was very marked. Every form of examination had been made and nothing could be found that might account for the condition. It was decided to open the ethmoids, which was done. No pus was found, but in the substance removed, after floating in water, there was a little membrane which took the form of a bag, that was possibly a cyst. The eye began to recover in a comparatively short time. Patient was nevertheless placed on small doses of mercury and iodid of potassium. The eye recovered with almost normal vision. In the course of a month or so afterwards she developed an acute infection of the antrum on that side, which was easily diagnosed, by transillumination and irrigation. At the same time another attack of neuroretinitis which was just as marked as the preceding one developed. Vision went down to 20/200. The antrum was drained, and the patient made a perfect recovery. She has not had a relapse for a year and a half or more.

Dr. Frank Brawley in referring to the point raised by Dr. Gradle as to whether these conditions are due to a localized infection or to toxemia, stated that in his experience he had gained the impression that a toxemia is really the cause. He had had a number of cases, some of which he had reported, where rapid improvement resulted from the evacuation of the sinus or following the use of the suction pump and drainage, so that he could scarcely see how one could explain it on any other ground than that of a toxemia. The case cited by Dr. Rochester would tend to support that theory, and particularly as Dr. Brown and Dr. Irons had found absence of organisms in the blood with the most careful technic.

Dr. Harry S. Gradle did not think that the conditions of optic neuritis, and uveitis due to accessory sinus trouble were at all identical. He agreed with Dr. Brawley that uveitis was probably due to toxemia, but optic neuritis, due to accessory sinus disease, was an extension of the process to the soft tissues from the accessory sinus through the orbit involving the intracanalicular portion of the nerve. The same therapeutic measures would tend to relieve the two conditions.

Dr. J. B. Loring stated that in determining the etiological factor we might think of several things to assist us, either there is an increased infection occurring or a diminished local resistance. He recalled a case he had quite a number of years ago at the time of the celebrated "Boodle trial" in Chicago. An attorney concerned in the defense of that suit was doing an immense amount of work and had infection of the antrum. He was also the subject of lues. It was thought that his case of iridocyclitis was due to syphilis, but as thorough treatment as could be carried out at that time failed to give any appreciable relief. The case persisted. After the antrum was drained effectively the trouble rapidly subsided. This man was doing an excessive amount of work at that time, and the iritis came on.

Another case, seen two or more years ago, was that of an artist decorator in the city, who was also doing an excessive amount of work at that particular time. He had noticed no change so far as the antral disease was concerned, having known that it was present for some time, and it having been recommended that the antrum should be drained. With his hard work he was practically prostrated. The iridocyclitis followed. Prompt relief was afforded after drainage of the antrum and keeping it up. Perhaps a close study of these cases might reveal points of increased focal infection. Take arthritis. There is usually either an exacerbation of the focal lesion or a diminished resistance at the point of onset, as seen in trauma, not that trauma has anything further to do with it than the production of a local diminished resistance. In the same way in a joint infection, the infection not involving the synovial secretion, but being external to the joint, there is a similar anatomical circulation in the villi in the joint as in the ciliary body and in the iris, increased irritation inducing stasis, rendering infection much more liable to be set up.

Dr. Dayton, Lincoln, Nebraska, congratulated Dr. Irons and Dr. Brown on the work they had done along this line. Ophthalmologists had followed the old nomenclature of ciliary, specific, traumatic iritis long enough, and when they did not know the cause, and there had been no trauma and syphilis could not be demonstrated, the iritis was put down as being of rheumatic origin.

Dr. George F. Suker asked Dr. Brown whether in his experience with these cases he had noticed that in some types the iris as a whole or only a section of it was more acutely inflamed than the other adjacent areas. Could we not have in some of these conditions a localized iritis, one that did not involve the entire iris? This might give some clue as to the selective tendency of these toxins and the relation to the question of infection.

Dr. Brown, in replying to Dr. Suker's question concerning the type of the iritis, said the first case was an ordinary acute iridocyclitis, with only one (deep) synechia. In the second case all parts were markedly inflamed, iris, ciliary body and choroid, and no part of the iris was exempt from the inflammation. The third case was a severe serous iridocyclitis with only slight involvement of the iris aside from the great difficulty experienced in securing dilatation of the pupil.

### New Observations on Cornea and Retina of the Eye.

Dr. Robert Von Der Heydt gave a translation of a lecture delivered February 26, 1916, by Dr. O. Haab, of Zurich, Switzerland, on this subject. (See March OPHTHALMIC RECORD for original.)

Dr. Von Der Heydt, in connection with Professor Haab's lecture, exhibited and reported two cases which bore some relation to the change described in the lecture. One was a case of choroidal rupture wherein after six months a red spot was seen in the macula. The other case was one of old neuroretinitis in which the same red spot was observed. He had noticed and studied these red spots in one case for six months intermittently, and in the other for about two years. Both had shown identical characteristics. At one time, both spots, most markedly the one in the lady, were surrounded by a definite halo. This was an edema of the retina, and was definitely outlined and like a horse's collar, in shape. Later on these edematous zones flattened out and disappeared; they are practically gone now, but the reddish pathologic center shows decidedly. Thus in these two cases radically different causes brought on similar foveo-macular changes as a manifestation of insult to the retina.

### A Method of Operation in Complete Obliteration of the Anterior Chamber with Report of a Case of Corneal Staphyloma. (See February Ophthalmic Record.)

Dr. Darling, in closing, thought the method he had described was of some advantage in saving eyes, especially in children with large perforating corneal ulcer, as the eye would aid in the growth of that side of the orbit. In a good many cases of ulcer of the cornea from gonorrheal ophthalmia and other diseases in children, the eyeball had to be removed and the orbit on that side did not grow. If this operation could be done, freeing the iris from the cornea, or an iridectomy done, the eyeball would be preserved, with possibly a little vision, and the orbit would grow on that side.

### Sarcoma of the Choroid.

Dr. Lawrence J. Hughes, Elgin, Illinois, spoke of having presented a case two months ago which was diagnosed as sarcoma of the choroid. The case was discussed by Dr. Fisher at the time who thought it was a typical case of this disease. Shortly after that the speaker removed the eye, and so far as macroscopic examination of a section of the eye was concerned, there was no evidence of sarcoma.

### Ventricular Injections for Tabetic Optic Atrophy.

Dr. George F. Suker said that through the courtesy of Dr. Gradle and Dr. Goldenburg he had had the opportunity of showing two cases this evening. They were both cases in which ventricular injections for tabetic optic atrophy were resorted to. Both operations were performed by Drs. Gradle and Goldenburg, the speaker simply assisting them. The patient of Dr. Gradle's had had three injections and his field of vision had perceptibly increased. In this instance 60 c. c. of ventricular fluid was withdrawn and the patient injected. He received 1/20th to 1/50th of a grain of bichlorid of mercury and his mentality had decidedly changed for the better. The other patient was also a tabetic of whom a positive report was made of absence of patellar reflexes. Now, if this was the case, that the patellar reflex had been restored after being absent in a case of tabes, it was an exceptional instance—an anomalous condition. Taking it for granted that the absence of patellar reflex was positively determined in this case, but was now present after bichloride of mercury injections, the speaker would consider the man not to be true tabetic but a senile dement. In other words, he had progressive dementia, the cerebral type or the cerebrospinal type of syphilis. In contradistinction to tabes or senile dementia, the man would maintain his vision and keep what he had and improve, because if ever there was a syphilitic condition that was favorable, it was the cerebral type of lues, particularly in those cases in which one got a modified type of Argyll-Robertson pupil which this man possessed.

He urged Dr. Goldenburg to watch the man carefully and take his field of vision at intervals and inject him rather frequently. If ophthalmologists had a right to do experimental surgery, they had a right in doing so in these two cases. The personality of one patient had undergone a remarkable change. The prima facie evidence was in the ophthalmoscopic appearance of the disc. An accurate record of the field of vision would determine the progressiveness of cases of optic atrophy.

Paul Guilford, Secretary.

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## PROCEEDINGS

## SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

S. LEWIS ZIEGLER, M. D., CHAIRMAN.

December 21, 1916.

### Bilateral Choked Disc Following Thyroidectomy.

Dr. Frederick Krauss presented the history of a patient, male, aged 23 years, who had intense perspiration, delirium, tetany and dizziness after an operation for thyroidectomy. Two months later he was still intensely nervous, depressed with the almost constant attacks of blindness, though his central vision was practically normal. He had an abnormally large red field crossing the form field. He had bilateral choked disc, the left eye showing a very small hemorrhage in addition. The swelling extended particularly along the course of the blood vessels, subsiding in about six weeks. Six months later there was no sign of the trouble, except very full lymphatics on a very gray disc. Vision and nervous system had apparently returned to normal lines.

Dr. Krauss felt that the traumatism in the removal of this cystic goitre had injured the sympathetic nerves in this region, causing a severe vasomotor reaction which produced an edema of the brain and optic nerves with the extension to the retina. These disappeared leaving no permanent results.

### Aviator's Dazzling.

Referring to the subject of aviator's dazzling, Dr. T. B. Holloway alluded to the recent large appropriations made by Congress for the use of the Aviation Service and the establishment of schools for aviation. He referred to a lieutenant in the Navy who had come under his observation during the summer of 1915. While on duty at an aviation station his eyes became somewhat painful, slightly injected, and there was some burning sensation of the lids. This was accompanied by poor ocular endurance for near work. A competent oculist who saw him about this time reported that he had some ciliary spasm, retinal hyperaemia and marked irritation of the conjunctivae of the eyeballs and lids. After the correction of a compound hyperopic astigmatism, he was advised to discontinue his aviation work. From that time on his eyes showed some improvement but there was no complete relief. Later on he was assigned to destroyer duty, and after a trial trip many of the old symptoms returned. At this time he came under Dr. Holloway's observation and the only change appreciable was a hyperaemia of the conjunctivae. There were no fundus changes and with a suitable correction 6/6 vision was obtained with each eye. He was forbidden work that would subject him to glare. He resumed his duties at the aviation station in the Fall, and with the use of a tinted lens, he reported that he was quite comfortable.

Dr. Holloway alluded to some of the literature relating to the effects of glare, and called attention to the recent articles of Zade, who has described numerous cases observed in the German army, not only in the aviation corps but especially among the anti-air craft gun crews. This observer also reports the frequent occurrence of a peripheral scotoma.

In closing Dr. Holloway stated that he was very sorry he had not made a perimetric examination of the case but at the time the patient came under observation Zade's work had not been reviewed.

Dr. Holloway stated that he thought he had suggested amber tinted glasses although he had failed to note this on his records. He thought that while Zade had recommended a euphos tint, probably one of a dozen different tints might answer the same purpose.

**Lupus of the Lids and Cornea.**

Dr. L. W. Hughes, by invitation, presented a patient, male, aged 22, who at first complained of poor vision in the left eye and swelling of the lids. The family history was negative except that his mother, one brother, one sister and an aunt died of tuberculosis. His father and one brother were living and well.

The patient had always been well except for an occasional headache. Denied ever having had any venereal infection. He used tobacco and alcohol moderately.

In August, 1914, the patient first noticed what he called a "small pimple" on the lower lid of the left eye near the outer canthus. This rubbed his eye each time he closed his lids. He received treatment from his family physician and the pimple disappeared. About three or four weeks ago while at work some powdered slack lime got into his eyes. Both eyes became red, swollen and sore and upon looking at the eye he first noticed a little red mass beneath the upper lid about twice the size of a pin-head. It became larger but did not cause him any inconvenience.

The eye began to discharge about the latter part of September of the same year. He was then sent to the Philadelphia General Hospital and the condition was diagnosed as a tuberculoma of the eye-lid. This growth was removed by Dr. Hansell on 10.4.1914 and the laboratory report by Dr. R. C. Rosenberger proved the former diagnosis to be correct.

At the time of the report the examination of O. S. showed the upper lid to be swollen and the margin of the lid appeared to be roughened. Upon eversion of the lid there were a number of soft dark red papules that gave the typical "apple jelly" nodular appearance first described by Mr. Jonathan Hutchinson. At the center of the lid was a furrow or sulcus as an evidence of where the old tuberculoma was removed. There was swelling and hyperaemia of the conjunctiva and some drooping of the eye-lid. A corneal ulcer was seen at the left lower quadrant with considerable bulging of the cornea. Vision 6/30.

There were a number of enlarged glands of the neck which had broken down, and a discharging sinus on the left side of the face near the ear.

Dr. Hughes summarized the case as follows:

(1) Family history of tuberculosis.

(2) Involvement of the lids and cornea was independent of the involvement of the nose and cervical glands.

(3) Removal of the tuberculoma and its positive diagnosis by laboratory reports.

(4) Slow growth.

(5) Repeated negative Wassermanns ruled out syphilis.

(6) Improvement of general condition by good food, rest, fresh air and light exercise.

*DISCUSSION.*

Dr. C. E. G. Shannon stated that at the time of the patient's admission to the hospital the upper lid was swollen and on eversion of the lid a growth about the size of a small walnut was seen. It was polypoid in form and granular in appearance and was attached to the tarsal conjunctiva by a short thick pedicle. The surrounding conjunctiva was occupied by a great number of papillary growths, while the surface of the lid was bathed with a muco-purulent secretion. The present appearance of the conjunctival lesion shows a marked excavation at the site of the former growth surrounded by a preponderance of papillary proliferations.

Dr. Shannon said that involvement of the cornea as shown in this case is rather frequent in lupus of the conjunctiva and therefore we should always regard the prognosis as grave, as extension of the process may cause destruction of the cornea or even the eyeball itself.

Burton Chance, in commenting upon Dr. Hughes' case of Lupus of the Eyelid, gave an outline, in both the dermatological and the ocular aspects, of this manifestation of tuberculosis, a disease which occurs so rarely in the practice of ophthalmologists. He stated that he had not had a patient exhibiting active symptoms, but he had had several who had applied for relief from the effects of the disease of the lids, the ducts, and of the globes. In these there were quite severe erosions of the skin, notably of the alae of the nose, in which region it is so stated by dermatologists that it frequently first shows itself, and is well shown in the case before us. Chance's cases had been in blondes and mostly Irish born; he does not recall a case in a negro.

Lupus is so rare that few ophthalmologists and dermatologists too, have seen it in America, yet it is comparatively common in European clinics.

The disease is a chronic cellular infiltration of the skin producing nodules beneath the surface, which increase in size and form patches. These patches may become absorbed or may ulcerate to be followed by cicatrization. The origin of the disease depends upon the invasion of the tubercle bacillus. It is manifested by a combination of proliferation and ulceration, granulation and cicatrization, affecting chiefly the corium. The nodules consist of cells grouped around the capillaries and contain giant cells, yet the tubercle bacilli, although pathognomonic, are few in number and are not always present in all specimens, although they were found in the nodules excised from the lid in the present case. The reactions to tuberculin tests notwithstanding, are completely positive. The mode of invasion is uncertain; it may be by direct inoculation; by extension from deeper foci; through the circulation; and even by maternal transference.

The patients usually present the scrofulous cachexia with more or less adenitis, but, except for the ulceration, they are remarkably free from subjective symptoms.

The mucous membranes may be invaded, and, when the disease has lasted a long time the eyelids and the globe may become involved. The lids may become distorted, the conjunctiva contracted and the cornea destroyed in the serious cases. The disease lasts many years; is rebellious to treatment, but in America the course and symptoms are less protracted and severe than in Europe.

The treatment consists in the pursuance of such general regimen as should be applied in cases of a more general tuberculosis, and by immunization by tuberculin inoculations. Locally, may be used pastes; radiant emanations; Finsen light; high frequency currents in the manner of desiccation as being amongst the most efficient methods. When it invades the eye the ulceration should be excised or curetted and the raw surfaces cauterized. Not much hope can be held out when it invades the globe, especially the cornea.

### Double Maxwell Operation.

Dr. William Zentmayer exhibited a case of contracted socket in which a double Maxwell operation had been performed five years previously. The pedicle grafts in the cul-de-sacs had not shrunken in the least, and the patient was wearing an artificial eye with comfort. The levator which had to be cut in order to slip the skin graft through the incision made through the thickness of the lid had its function unimpaired.

*DISCUSSION.*

Dr. Chance said that he had been so much impressed by the beneficial results obtained from the Maxwell operation in certain cases under Dr. Zentmayer's care, that he himself had performed it two or three years ago in a case, and he had endeavored to have the patient present tonight. In that case the lower lid had been drawn far into the orbit and the upper lid was a mere nodule. By the Maxwell operation the patient had been pleased to wear a modified glass eye and three weeks ago submitted to operation to restore the position of the upper lid by means of the method described by Dr. Schwenk before this Section in December, 1915. The immediate effects of the last operation brought about the formation of a distinct cul-de-sac which, however, has contracted somewhat in the past few days. Because of the benefit derived from Maxwell's procedure on the upper lid in Dr. Zentmayer's patient, Chance is considering to attempt it in his case, should the contraction become greater. The Maxwell operation not only increases the capacity of the orbital socket, but also succeeds admirably in the restoration of the contour and function of the eyelids.

### Implantation Cyst of the Anterior Chamber.

Dr. Harold G. Goldberg presented a case of implantation cyst of the anterior chamber following a punctured wound of the eyeball received several months before the appearance of the growth. The cyst was of the pearl tumor type composed of both epithelium and connective tissue which had been conveyed to the anterior chamber through the original wound. Two attempts were made to remove it by operation, each time including a section of the iris. The vision of the eye was very little affected and there was no evidence of any extension into the deeper structures. Dr. Goldberg believed however, that the iris had become so deeply invaded by the epithelial growth that a thorough removal was impossible.

**Hydrophthalmos.**

Dr. Zentmayer showed an extreme case of hydrophthalmos. The right eye was blind and soft. The left eye had vision-hand movements, tension stony hard. Dr. Zentmayer discussed the hypotension of the right eye in the light of Treacher Collins' studies regarding the phenomenon in contusions of the globe and concluded that it was probably the result of the rupture of the sclera from striking the eye as the child's forehead bore many scars received in this way.

J. Milton Griscom, M. D., Clerk.

## ROYAL SOCIETY OF MEDICINE.

### SECTION OF OPHTHALMOLOGY.

MR. WILLIAM LANG, F. R. C. S., PRESIDENT.

(Feb. 7, 1917.)

Mr. G. Hartridge showed a drawing of a case of probable rupture of the optic nerve. The patient, an airman, while flying, suddenly fainted, and he remembered nothing for five days after his fall. The machine and its occupant were seen to fall 500 yards. Serious damage to the left arm and right eye resulted. Three weeks later, extensive sub-conjunctival hemorrhage was seen in both eyes. The right was blind, and the vitreous was too full of blood to permit of an examination of the fundus. No foreign body was felt with a probe. The right eye remained blind. Vision in the left eye became 6/5, and the fundus normal.

Mr. Grimsdale showed a case of (?) congenital absence of the choroid.

Mr. Arnold Lawson gave a detailed account of three cases of fur infection of the conjunctiva of children from cats, all the patients having well-to-do parents.

Case 1. The patient, a girl aet. 15 years, after romping with a favorite Persian cat and burying her face in its fur, was found to have an effusion of the eyes, and a severe sneezing attack. Next day the eyes were swollen, and a discharge appeared. A few hours later, the condition had become very acute, the eyes streaming with pus. The nostrils were also swollen and a sanguineous fluid was oozing from them. Cultures were made from the cat's fur and from the eye exudate, and gave staphylococcus pyogenes aureus in abundance. Energetic treatment on conventional lines soon brought improvement, and no permanent damage to the eyes ensued. The cat was destroyed.

Case 2. A boy aet. 14, a fortnight before Mr. Lawson saw him, had some inflammation of the eye, with slight discharge, and swelling of the glands of the neck. The local doctor diagnosed mumps, but it did not behave like that disease. Mr. Lawson was therefore consulted. He found the whole of the left side of the face swollen, and a brawny induration over the parotid region. The lids of the left eye were so swollen that examination was difficult. The rapid march of the condition seemed to exclude tubercle. The boy had been accustomed to walk about with a pet Persian cat perched on his shoulder; he also cuddled it. Under general anaesthesia, the disease was treated with cutting, scraping, and swabbing with 2% nitrate of silver solution. Three months ensued before the cure was complete. The scrapings showed streptococcus longus, streptococcus brevis, and staphylococcus albus. In the cat's fur, staphylococcus albus was found, and in its skin staphylococcus citreus and some non-pathogenic varieties. This cat also was placed out of harm's way.

Case 3. A little girl, aet. 5 years, was staying with friends near a farm, where she passed much time with a cat. The cat was also frequently among the animals in a cow-shed. The child showed mild muco-purulent conjunctivitis. Later, some neck glands became involved, and when Mr. Lawson saw the child he found an exuberant mass of cox-comb-like granulations on the upper lid and retro-tarsal tissue. He suspected tubercle. Vigorous treatment resulted in an excellent recovery, after three operations. The child had remained well during the four intervening years. Mr. Browning pronounced the scrapings to contain tubercle bacilli, probably of the Bovine type. A few of the bacilli killed the guinea pig into which they were injected within a fortnight. The object of the paper was to arouse the public to a sense of the danger of these pets as disease-carriers, especially in the case of children.

Mr. P. C. Bardsley read a paper entitled "The Retinal Signs of Arterio-Sclerosis compared with those due simply to Increased Blood Pressure." The late Marcus Gunn, in his great work on the retinal appearances of arterio-sclerosis, gave four cardinal signs, namely, (1) a tendency towards tortuosity of the arteries; (2) a variation in the calibre of the vessels;

(3) alteration of the normal light streak, which becomes brighter and more sharply defined; (4) indentation of veins. Formerly, the prognosis in these cases was considered to be gloomy, but Mr. Bardsley had noticed that many cases giving those appearances even in advanced degree, improved very much under treatment. Sometimes the changes associated with the condition came on quite rapidly, which he did not think could occur in arterio-sclerosis. These cases always had a high blood pressure, and often headaches too, and when the blood pressure was reduced the retinal signs of sclerosis appreciably diminished. He maintained that it was possible to determine by the ophthalmoscope the signs of arterio-sclerosis as distinguished from those of simply heightened blood pressure. The latter condition was associated with the following appearances: (1) the vessels have the appearance of *uniform* distension and fullness; (2) the light streak is broadened out, it does not have the appearance of silver wire; (3) the tight arteries indent the veins.

The paper was discussed by Mr. Herbert Parsons, Mr. J. B. Lawford, and Mr. D. Leighton Davies.

New York, March 26.—Frank A. Vanderlip, Otto H. Kahn, Edmund L. Baylies, and George A. Kessler, comprising the finance committee in this city of the American, French, British, and Belgian Permanent Blind Relief War Fund, have decided, it was announced tonight, to guarantee to the French committee $40,000 annually for five years.—(*Chicago Tribune,* March 27.)

At the Roentgen Ray Society's February meeting, in London, Professor Fournier d'Albe demonstrated an instrument whereby with practice blind persons are enabled to read ordinary print by sound. The instrument depends upon an application of selenium, and is a development of an instrument which Professor d'Albe used four years ago to enable sightless persons to locate bright lights or brightly luminous patches by means of the ear and to discover shadows intercepting the light.

## OBITUARY.

W. Franklin Coleman was born in Brockville, Ont., Canada, in 1838, and died January 22, 1917, at Federal Point, Florida, at the age of seventy-nine years. He took his M. D. from Queen's Medical School, Kingston, Canada, in 1863, and his M. R. C. S.—England, in 1870—where he was specializing on diseases of the eye and ear. Returning to Canada, he practised as an oculist and aurist in Toronto. In 1877 he again went abroad—and studied in the clinics of Vienna and Heidelberg. The following year he located in St. John, New Brunswick, Canada—where he remained for seven years—the only oculist in the twin provinces of New Brunswick and Nova Scotia; it was here he married the wife who survives him. In 1885 he emigrated to Chicago, where his energies and abilities were displayed to their fullest capacity in the scholarly and scientific character of his contributions to ophthalmology.

He was a pioneer in post-graduate medical work in Chicago, being one of the active and moving spirits in the promotion and organization of both the Polyclinic and Post-Graduate Medical Schools. He achieved considerable reputation through his teachings and writings on electricity as a remedial agent in eye, ear, nose and throat practice. His book, embodying his views and experiences on this subject, appeared in 1912. In fact, electricity was a hobby with him.

Among his other literary productions are the following: "Can the Accommodation be Paralyzed by Homatropine?"; "The Use of a Plus Cylinder in Myopic Astigmatism of Low Degree;" "Preliminary Iridectomy in Extraction of Senile Cataract;" "Retinitis Pigmentosa an Evidence of Degeneration in the Offspring of Consanguineous Marriage." He also wrote the sections on the use of electricity in eye diseases for Wood's *System of Ophthalmic Therapeutics,* and his *Encyclopedia of Ophthalmology.*

For many years Dr. Coleman was president and professor of Ophthalmology in the Post-Graduate Medical School of Chicago. He was also professor of Ophthalmology in the Illinois School of Electro-Therapeutics. He was a member and ex-president of the Chicago Ophthalmological Society.

Dr. Coleman was a lover of literature, art, and the drama. He was lovable and companionable. His devotion to his friends was only exceeded by his love for his profession. His interest never flagged in his work, and at the time of his death he was preparing an article for publication on the ocular muscles. He never grew old and the joy of living was as keen as in his earliest youth.—C. H. Long, M. D., Chicago.

W. Franklin Coleman.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 7 West Madison street, Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Dr. J. Brown Farrior has succeeded Dr. Louis A. Bize in his practice, in Tampa, Fla.

The next meeting of the Oxford Ophthalmological Congress will be held at Keble College, Oxford, on July 11, 12, 13.

Dr. L. Webster Fox has been reëlected president of the Pennsylvania Home Teaching Society and Free Circulating Library for the Blind.

A tablet to the memory of the late Professor Malcolm McHardy was recently unveiled by Miss Ellen Terry, at the Royal Eye Hospital, Southwark.

Dr. G. I. Hogue announces that he has returned from border service with the Wisconsin National Guard, and has resumed his practice in Milwaukee.

At the recent annual meeting of the Bristol Eye Hospital, it was reported that for the year 1916, 456 in-patients and 9,269 out-patients were treated.

The next Annual Congress of the Ophthalmological Society of the United Kingdom will be held next May, under the presidency of Mr. Walter H. Jessop, in London.

In the first biennial report of the Missouri State Commission for the Blind, there are recommended laws requiring the reporting of sore eyes in infants by the midwives in charge of the case within 24 hours after discovery.

Dr. Will Walter is confined to his home in Evanston, Ill. convalescing from a fractured left shoulder. Both clavicle and scapula were broken, the latter in three places; but complete restoration is anticipated. The injury resulted from a collision which overturned his motor car.

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The "Record" appears this month for the first time in "saddle-stitched" binding. This allows the book to be opened and to remain open more easily. We shall be interested to receive comments from our subscribers, favorable or otherwise, in regard to this innovation.

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The Illinois State Medical Society meets this year in Bloomington, May 8-9-10. The committee in charge of the clinics is endeavoring to make the eye, ear, nose and throat clinic a most successful one, both in the number and variety of cases.

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The second examination to be given by the National Board of Medical Examiners will be held in Washington, D. C., June 13. The examination will last about one week. A successful applicant may enter the Reserve Corps of either the Army or Navy without further professional examination, if their examination papers are satisfactory to a Board of Examiners of these Services. Application blanks and further information may be obtained from the Secretary, Dr. J. S. Rodman, 2106 Walnut Street, Philadelphia.

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## OBITUARY.

Dr. Howard Marsh, Russell, Kan., Jan. 3. Age 45.

Dr. George W. Robinson, Shreveport, La., Feb. 4. Age 53.

Dr. Frank A. Ford, Altoona, Pa., Feb. 10. Age 40.

Dr. Henry Dwight Holton, Brattleboro, Vt., Feb. 12. Age 79.

Dr. M. R. Pritchard, Westfield, Pa., Feb. 23. Age 64.

Dr. John L. Moffett, Ithaca, N. Y., Feb. 18. Age 63.

Miguel Santa Cruz, director of the National Ophthalmic Institute in Madrid.

A. von Hippel, until 1914 regular professor of ophthalmology at the University of Göttingen, author of numerous works on the eye, color blindness and school myopia, and pioneer in operative treatment of myopia and of lesions in the cornea. His seventieth birthday was celebrated two days before his death.

## THE AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS.

This Board, which is identical in personnel with the Ophthalmic Credentials Committee of the American College of Surgeons, was organized after much preliminary work, in 1916. It consists of nine members, three each from the American Ophthalmological Society, the Section of Ophthalmology of the American Medical Association, and the American Academy ot Ophthalmology and Oto-Laryngology, chosen in the same manner as their presiding officers are chosen. One is elected each year by each of the societies represented on the Board, for three years. No one can serve over six years.

The movement is undertaken for the purpose of raising the standard of ophthalmology. The chief functions of the Board are: (1) To establish standards of fitness to practice ophthalmology; (2) to investigate and prepare lists of medical schools, hospitals and private instructors recognized as competent to give the required instruction in ophthalmology; and (3) to arrange, control and supervise examinations to test the preparation of those who desire to practice ophthalmology, and to confer a certificate (not a degree) upon those who meet the standards established.

The American Ophthalmological Society and the American Academy of Ophthalmology and Oto-Laryngology have voted that after 1920 they shall require every applicant for membership to possess the certificate of the Board, unless the applicant shall possess a degree in ophthalmology conferred by a university recognized by them.

At the first examination of the Board, held in Memphis, in December, 1916, twelve applicants appeared for examination. Those who have been passed will be duly certified after its next regular meeting. The regular annual examination for 1917 will be held immediately following the meeting of the American Medical Association, beginning the evening of June 7th, and extending over June 8th and 9th. At that time only those whose applications were filed before March first can come up for examination. As the number of applicants from any particular section of the country becomes sufficient, special examinations will be arranged at the most convenient place that will furnish the needed facilities; the giving of a practical clinical and laboratory examination being possible only where good clinical facilities are available. Details with regard to these examinations and the requirements to be met, can be obtained from the Secretary, Dr. Frank C. Todd, of Minneapolis.

# CHICAGO EYE CLINICS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 A.M. | Richard S. Pattillo (P.-G.)<br>G. W. Mahoney (Poli.)<br>R. B. Stephenson (P.-G.)<br>Carl Wagner (E.E.N.T.) | *Geo. F. Suker (P.-G.)<br>C. H. Francis (Poli.)<br>A. Duncan (P.-G.)<br>A. G. Wippern (E.E.N.T.) | W. F. Coleman (P.-G.)<br>S. M. Hager (Poli.)<br>H. N. Lyon (P.-G.)<br>Carl Wagner (E.E.N.T.) | G. W. Mahoney (Poli.)<br>Rich'd S. Pattillo (P.-G.)<br>R. B. Stephenson (P.-G.)<br>A. G. Wippern (E.E.N.T.) | C. H. Francis (Poli.)<br>R. B. Stephenson (P.-G.)<br>J. A. Cavanaugh (E. E. N. T.) | S. M. Hager (Poli.)<br>C. W. Hawley (P.-G.)<br>H. J. Morlan (P.-G.)<br>A. G. Wippern (E.E.N.T.) |
| 10 A.M. | Brown Pusey (N.W.U.)<br>Geo. T. Jordan (N.W.U.)<br>Robert Blue (N.W.U)<br>Every day, 10-12 A. M.<br>Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) |
| 1 P.M. | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>E. V. L. Brown (County) and Geo. F. Suker (County) Daily, 2:30 P. M.<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffmann (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>Oliver Tydings (E. E. N. T.) | W. Allen Barr (Inf.)<br>*Frank Allport (St. Luke's)<br>*Frank Brawley (St. Luke's)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>*Paul Guilford (St. Luke's)<br>*Casey Wood (St. Luke's)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>H. W. Woodruff (Inf.)<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>Oliver Tydings (E. E. N. T.) |
| 3 P.M. | *Wm. E. Gamble (U. of I.)<br>Wm. H. Wilder (Rush)<br>H. S. Gradle Daily 3-5 (E. M. D.) | R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.)<br>*Wm. E. Gamble (U. of I.) | Wm. H. Wilder (Rush)<br>R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.) | Geo. F. Suker (P.-G.) 2-5<br>H. Cuthbertson<br>A. Duncan |
| 4 P.M. | W. F. Coleman (P.-G.)<br>H. N. Lyon (P.-G.) 2-5 | C. W. Hawley (P.-G.) 2-5<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | J. B. Loring (U. of I.)<br>E. K. Findlay (U. of I.)<br>G. F. Suker (P.-G.) 2-5<br>H. Cuthbertson (P.-G.) | C. W. Hawley (P.-G.)<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | W. F. Coleman (P.-G.) 2-5<br>H. N. Lyon (P.-G.) | |

*Special operative eye clinic.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 1844 W. Harrison Street.

E. M. D.: Emanuel Mandel Dispensary, 1012 Maxwell St.

County: Cook County Hospital, W. Harrison and Honore Streets.

Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.

M. H.: Mercy Hospital.

Poli.: Chicago Policlinic and Hospital, 221 W. Chicago Avenue.

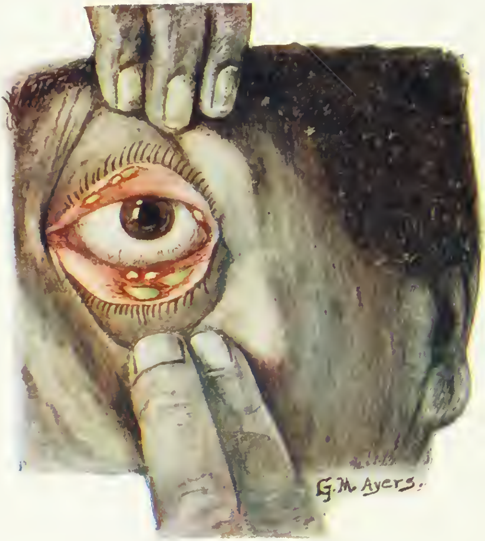
P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.

N. W. U.: Northwestern University, 2431 Dearborn Street.

Rush: Rush Medical College, W. Harrison and Wood Streets.

St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

U. of I.: College of Medicine, University of Illinois, Congress and Lincoln Streets.



Conjunctivitis tularensis
(Squirrel-plague Conjunctivitis)
*Frederick W. Lamb*

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

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# CONJUNCTIVITIS TULARENSIS (SQUIRREL-PLAGUE CONJUNCTIVITIS) WITH REPORT OF A CASE.*

BY
FREDERICK W. LAMB, M. D.
CINCINNATI, OHIO.

I wish to present for consideration and discussion an unusual case which recently came under my observation, the third case to be reported, of what seems to be a new disease in ophthalmology.

The first case on record was reported by D. T. Vail, in a paper read before the Michigan State Medical Society, September 10, 1914, and published in the OPHTHALMIC RECORD, October, 1914. This case was also reported by Wherry and Lamb in the *Journal of Infectious Diseases,* September, 1914.

The second case was reported by Robert Sattler, before the American Ophthalmological Society, in 1915, and published in the *Archives of Ophthalmology,* May, 1915.

The third case is the one I wish to report today.

C. F., a young colored girl, was first seen by me on November 16, 1916. She complained of pain and swelling in the left eye, accompanied by some discharge. The eye had been steadily growing worse since the beginning of the trouble, three days previous, and the day before I saw her she had had a chill, followed by headache and a feeling of general malaise.

There was edema of the eyelids, and a watery discharge. The conjunctiva of the lower lid was the site of 6 or 7 small, sharply defined deep ulcers filled with yellow necrotic plugs. The conjunctiva of the upper lid was free from ulcers at this time. The pre-auricular gland on the left side was very much swollen and tender, the cervical glands were tender but not much enlarged. Questioning brought out the fact that two days before the onset of her trouble she had prepared some rabbits for the evening meal of the family where she was employed. A diagnosis of conjunctivitis tularensis (or squirrel-plague conjunctivitis) was made, and she was sent to my service in the

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*Read before the Academy of Ophthalmology and Oto-laryngology at Memphis, Tenn., 1916.

Cincinnati General Hospital. Dr. Wherry and my brother, Dr. Benjamin Lamb, studied the case bacteriologically and confirmed the diagnosis.

Guinea pigs inoculated with secretion from the eye died on the fourth day, and from the numerous miliary abscesses in the spleen and liver, the bacillus tularensis was isolated. Inoculations of guinea pigs with blood from the patient were negative. Inoculation of ordinary culture media showed no growth. Dr. Benjamin Lamb was able, however, to grow the bacillus on egg yolk medium from inoculations made directly from the conjunctival ulcers. He also made an autogenous vaccine which we used therapeutically with most gratifying results.

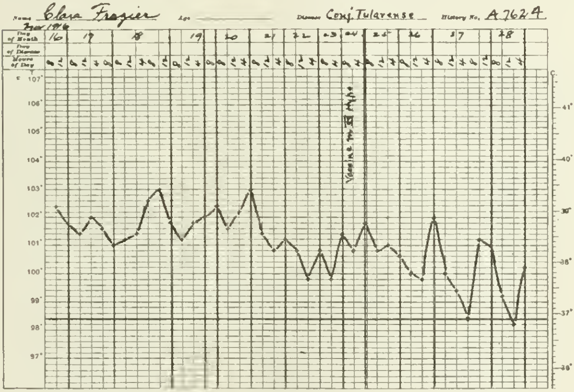
On November 20, four days after I first saw her, and eight days after the onset the disease had extended so that the discrete ulcers had fused into three or four large ones, and four small ulcers had appeared on the conjunctiva of the upper lid, two near the upper margin of the tarsus and two near the free border of the lid. The swelling of the lids had been reduced considerably by cold applications and flushing the conjunctival sac with boracic acid solution. The temperature of the patient was somewhat septic in type varying from 101 to 103, pulse 90 to 100. Her mental condition was drowsy and stupid. She complained of very little pain in the eye, but the glands of the neck were exquisitely tender.

On November 24 she received one-half minim of vaccine subcutaneously in the left arm. There was no systemic reaction, the highest temperature on the following day being 101, but at the site of injection there appeared the next day several blebs surrounded by an indurated area, the size of a dollar. The following day the temperature rose to 102. The appearance of the eye was about the same.

On November 29, five days after the first injection of vaccine, she received one minim in the right arm. There was a slight systemic reaction following this injection, the temperature going to 101 and pulse to 120, accompanied by headache, "stiff neck," and pain in the arm and shoulder. The local reaction was much like that following the first injection.

The next day there was no rise of temperature, and the appearance of the eye was much better. There was less secretion and the necrotic tissue had sloughed away from the ulcers, leaving clean-looking, bright red granular bases, rather deep but clean. Her mental condition was much better, and she asked permission to be out of bed. Her temperature now remained normal until December 4, when she was given another minim of vaccine in the left arm. On December 5, her temperature rose to 102, pulse 120, with some headache and pain in the arm. On December 6, temperature and pulse were again normal. The swelling had nearly all disappeared from the lids, the small ulcers on the upper lid had become much smaller and the larger ones on the lower lid much shallower. The preauricular gland was still swollen and tender.

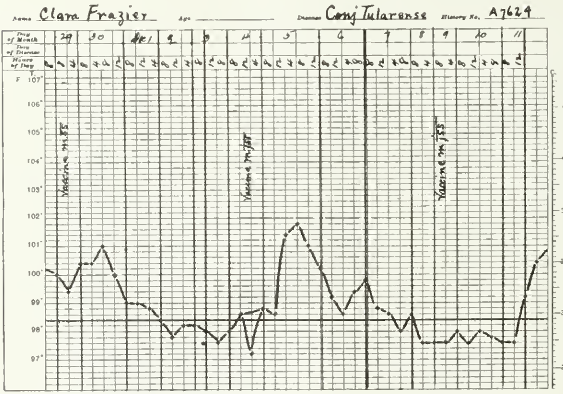
On December 10, the ulcers of the upper lid had disappeared and those on the lower lid had become much smaller. Recovery is now assured.



The following bacteriologic examinations were made by Drs. Wm. B. Wherry and Ben H. Lamb:

On November 16th pus from the eye was inoculated into the peritoneal cavity of a guinea pig. The pig died in three and a half days with typical lesions—caseous necrosis of the abdominal muscles at the site of inoculation; marked subcutaneous oedema; a viscous peritoneal exudate and numerous foci of necrosis in the liver and spleen. B. tularensis was isolated from the spleen on coagulated egg yolk under aerobic and partial tension conditions but there was no growth under anaerobic conditions on this medium. Attempts to cultivate it on a number of other special media containing human blood or ascites fluid failed.

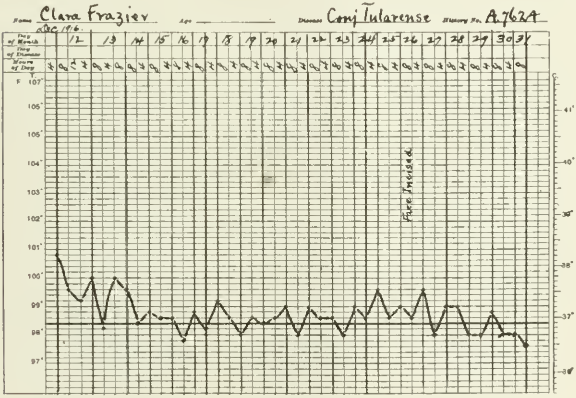
We have always failed to find the bacterium in smears from human cases but direct cultures from the eye made on egg-yolk slants on November 20th yielded quite a few colonies of B. tularensis along with those of B. xerosis. A vaccine was prepared by suspending the growth from a 48-hour culture (without scraping off any of the egg-yolk) in sterile 0.85 per cent salt solution. This was heated to 55° C. for 45 minutes, cooled, and preserved with 0.5 per cent phenol. The suspension was so dilute that it hardly exhibited any opacity. When the phenol was added to the heated vaccine it immediately became viscous like a solution of salicylic acid. One-half minim of this vaccine inoculated subcutaneously into the patient's arm produced over night a marked oedematous swelling about 3x4 inches and this was covered by vesicular blebs containing clear serum. At the same time the temperature rose 1.0° F. There were no other constitutional symptoms. A similar reaction was produced by each successive inoculation. This simulates the mallein test for glanders and suggests the use of such a vaccine in the diagnosis of obscure cases or in cases which have progressed too far for bacteriologic diagnosis. Late in the disease, though active symptoms are present, it may not be possible to demonstrate the bacilli. On December 26th, over a month after this case came under observation, the pre-auricular gland was greatly enlarged (about 1x$\frac{3}{4}$ in.) and soft. It was opened and



the pus was cultured and inoculated into a guinea pig without results.

So far as I have been able to ascertain this is the third case to be reported, of infection of the conjunctiva with bacillus tularensis. This bacillus was discovered and first described by McCoy and Chapin in 1911, during their work in California on bubonic plague.

They studied a plague-like disease occurring in California ground squirrels and isolated a bacillus which they first supposed to be identical with the cause of bubonic plague in man, the bacillus pestis. Further study, however, revealed points of differentiation and they called this disease in squirrels, the squirrel-plague and the bacillus which caused it, the *bacillus tularensis,* from Tulare county, California, where it was then prevalent.



The disease is very fatal in squirrels, rabbits, guinea-pigs and other rodents. Infected guinea-pigs always die and in from four to six days.

Two years ago during the autumn hunting season, it was noticed that wild rabbits were dying in large numbers in the country districts around Cincinnati. Some of these dead rabbits were submitted to Dr. Wherry, and from them he isolated the *bacillus tularensis.* The two cases reported previous to my case occurred at this time in Cincinnati, and gave a history of having handled dead rabbits.

The infection is undoubtedly transmitted by direct contact with infected material, in all of the cases so far reported, dead rabbits. A peculiar coincidence is that all three of the cases have had the infection in the left eye.

The progress of the disease in the cases previously reported has been very slow and tedious, one of the cases having passed from observation before the eye was well and the other remaining in the hospital for two months.

In my case, which has now practically recovered at the end of the fourth week, I am convinced that the use of the vaccine has greatly shortened the time of recovery. There was marked improvement after the first dose and normal temperature after the second, with rapid improvement in the appearance of the eye.

This disease seems to be a new one in ophthalmology although it is possible that unrecognized cases have been seen by men who have not had the advantage of collaborating with a bacteriologist, familiar with the work of McCoy and Chapin.

Further Notes: On December 10, the patient received another injection of vaccine following which there was some local reaction and a rise of temperature to 101. The pre-auricular gland became more swollen, painful and tender. On December 26, this was incised and about 10 c.c. of gelatinous fluid and pus was evacuated. Inoculation of guinea pigs with this material proved negative. It is interesting to note that after each injection of vaccine the swelling and tenderness of the pre-auricular gland increased, but the appearance of the eye improved.

On January 1, 1917, the eye was entirely healed.

## EYE SIGNS AND SYMPTOMS OF MONGOLIAN IDIOCY*

BY

CASEY A. WOOD, M. D.,

CHICAGO.

My experience of this form of mental defect, especially in its relations to the eye, is confined to eleven cases, to four of which I am indebted to the essayist of the evening, Dr. Mary E. Pogue. For an opportunity to study two others I am likewise in the debt of Dr. Archibald Church. This number may appear too small to admit of generalizations regarding the ophthalmic conditions, were it not that this form of idiocy and imbecility offers in the majority of cases certain rather definite ocular alterations.

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* Read before the Chicago Ophthalmological Society, April 16, 1917.

The literature on the subject is fairly voluminous for so rare a condition, but probably all that can be said upon the subject will be found in the communications of O. W. Ormond, who has collaborated with others in his report to the *British Medical Journal,* July 23, 1910, and to the *Ophthalmic Review,* December, 1911, on 43 defectives, all of whom presented various forms of ophthalmic disease.

At the outset it may be said that more than fifty per cent of Mongolian idiots show eye changes of various sorts, and that these are mainly abnormal direction of the interpalpebral fissure, epicanthus, blepharitis, ectropion, squint, nystagmus and cataract. I propose to say a few words about each one of these abnormalities.

*The relative position or direction of the interpalpebral fissure* forms one of the general characters of this mental defect. The fissure on each side is directed upwards and outwards in nearly two-thirds of the cases, giving a decided "Chinese" appearance to the unfortunate patient.

*Epicanthus* is a very common congenital anomaly in Mongolian idiocy and is found in about one-quarter of all the cases. W. F. Hardy (*American Encyclopedia of Ophthalmology,* p 2792, Vol. IV) remarks that "a condition somewhat analogous to epicanthus is normal to the Mongolian race in which the bridge of the nose remains flat. Children with epicanthus have therefore been referred to as Mongolian types and have been thought to represent examples of atavism. The admixture of Mongolian blood has also been suspected. Both of these suppositions can in most cases be positively ruled out. The spontaneous cure, due to the growth of the nasal bridge, certainly speaks against such views."

In three of my cases the epicanthic condition was well marked, and in one instance was associated with a decided, bilateral congenital stenosis of the lacrymal duct—the so-called infantile dacryocystitis.

*Blepharitis* is generally of the dry, marginal type, and is thought by some observers to be due to the uncleanly habits of a certain class of idiots, who frequently rub their eyes. Personally that has not been my impression of its causation and perpetuation. The facial skin as a whole is often not normal and the dermal covering of the lid may exhibit the same characters and serve as a basis for the blepharitis; or it is perpetuated by ectropion and possibly by errors of refraction, that are also frequently present.

*The ectropion*, just referred to, together with the scaly blepharitis, is found in nearly half the cases of Mongolian idiocy. The former is very likely due to a superficial contraction of the palpebral skin, which is often rough, glazed and quite dry. In one of my cases, this condition of the lids was well shown, and gave rise to a good deal of trouble.

*Squint,* generally of the convergent variety, is quite frequently present and may be regarded as one of the stigmata of Mongolian idiocy. It occurred in three of my small series, while Ormond noticed it in 9 cases out of the 43 that he reported. There does not seem to be anything special about the form of the strasbismus, and it is associated, as a rule, with the usual amount of hypermetropia.

Of *refractive errors* it may be said that an unusual degree of hypermetropia, generally associated with astigmatism, is common in Mongoloids.

*Nystagmus,* of the lateral variety, occurred in two of my cases, and Ormond reports 5 instances in his 43 cases.

*Cataract.* By far the most characteristic and most interesting concomitant ocular change in this form of idiocy is, however, lenticular opacities. These occur so regularly that they may be regarded as a veritable stigma of Mongolian idiocy, and when there is doubt as to the form of the mental defect in early infancy, I believe the fundus should be carefully scanned for the punctate form of the anomaly, because it occurs in more than half the cases.

One of the peculiarities of this dotted cataract is that it is not easy to discover in infants a few months old. The dots at this period are so translucent that they cannot always be seen by transmitted light. Later, they probably increase in number and in opacity, so that their presence can readily be detected. They are always of incomplete form and appear in the lens layers occupied by the changes in ordinary lamellar cataract. They do not spread to the periphery of the lens, but take the form of small, definite, discrete dots. In about one-quarter of the cases there is also well marked posterior polar cataract.

In the few cases I have examined there were no vitreous, retino-choroidal or optic nerve changes, and I do not believe that alterations of this character belong to the ocular stigmata of Mongolian idiocy. For this reason and because of the fact that the abnormalities first mentioned are not a part of a general luetic or tubercular infection, I venture the statement that the cause of the psychosis itself is not essentially syphilitic or tubercular, in spite of the fact that the vast majority of these imbeciles die early of tuberculosis.

It may be added that inability to see these congenital conditions has given rise to the statement that Mongolian cataract does not appear until the sixth or seventh year, while the truth is that they are frequently present in the first months of life, but it is easy to overlook them at that age.

Some authorities have noticed an interstitial keratitis in a few instances, but this, again, is probably an accidental occurrence.

In accord with the general findings, the ocular defects in this disease are not of the familial type; each one of my eleven cases, for instance, formed the only example of marked mental incapacity in the immediate family.

Owing to the extreme difficulties connected with the making of an eye examination of Mongolian idiots the visual acuity can only be guessed at, and I found it almost impossible in every one of my cases to determine, apart from the doubtful aid of the skiascopic mirror and the ophthalmometer, even the exact refractive condition. The inability of the child to concentrate is, of course, the main explanation of this difficulty.

I am much indebted to my colleague, Dr. C. P. Small, for assistance in investigating this subject.

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# THE RELATION OF THE OPHTHALMOLOGIST TO MILITARY SURGERY

BY

SYDNEY WALKER, Jr., B. S., M. D.
ASST. SURG. M. R. C., U. S. NAVY.

When the complete story of the present war shall have been written, and each Medical Department of the Army and Navy given its just dues, then the real relationship of the Ophthalmologist to Military Surgery will be firmly established.

Because of the fact that the Army, Navy and Marine Corps have approximately the same requirements as regards physical standards, and in all other respects are about the same from the standpoint of the Ophthalmologist, they will be discussed together.

Gatewood in his excellent book on Naval Hygiene has well said that the health of the Navy depends upon the Recruiting Surgeon; and this is not only applicable to the General Surgeon, but in some decree also to the Ophthalmologist. In the Navy and Army Recruiting Station men are given the choice of enlisting in the Seaman, Artificer or special branches, while in the Army, they can choose the infantry, cavalry, artillery or special branches. Therefore, the amount of sight which is required for certain branches differs from others, and many times these points should be for an ophthalmologist to decide. The main point which strikes me here is the rejection of a man for vision less than 15/20 in either eye, when due to a refractive error such as myopia. It is a known fact, and in two cases my personal knowledge, that myopes with uncorrected vision of 5/20 in both eyes and corrected vision of 20/20 plus are among the best rifle shots in the Army and Navy.

Peterson & Traquair state that the soldier who sees best, shoots best, and that those who wear correcting spectacles, shoot better than those who do not; further it is the corrected vision which accepts or rejects a recruit and not the uncorrected. Hence he says Great Britain and the United States standards are inconsistent, because recruits with defective vision in one eye who have never been incapacitated in industrial pursuits fail to pass the vision test, while those with cataract, optic atrophy, hypermetropia of moderate degree and corneal opacities are allowed to pass. It has been the experience in armies that hypermetropes who pass the test while well and strong will, after some months of trench life find vision greatly reduced due to the inability to maintain accommodation. It has also been found that miner's nystagmus is exaggerated by military service, hence men with this tendency should be excused especially in mining districts.

Further, men will pass the vision test before the Recruiting Surgeon and yet not possess binocular single vision, because the regulations do not specify this and besides it is as a rule rarely tested. Often too malingerers are able to "fail" on the vision test and I would state that in the event of compulsory military service, this would prove a loop hole through which many slackers could avoid military service "legitimately." Should compulsory military service become a law, the above facts alone would be sufficient cause to have at least a visiting ophthalmologist to the different recruiting stations. To soldiers and sailors then the relation of the ophthalmologist is very close and should in the future prove more so.

There are times when the ophthalmologist is of the greatest value at the front or in the first aid hospitals. Bonnefon advises puncture back of the region of the equator of the eye as soon as possible after injury in detached retina on the ground that the retina loses its vitality so rapidly, that by the time the patient reaches the base hospital permanent damage has been done. This he says is the only intervention on the eye which should be done at the front and he reports three such cases cured after puncture with the actual cautery back of the equator.

Bahr advises a conjunctival flap in all perforating wounds of the anterior segment of the eye, first applying tinct. of Iodine to all lid injuries and wounds of the anterior segment even to prolapse of the iris. This seems to me to be of the greatest value too as from personal experience and from the reports of others I can state that many eyes have been lost from the lack of immediate attention. The fact that the length of time from the First Aid Station to the Base Hospital is often 8 to 14 hours is sufficient cause to have such cases treated at the front, and many such eyes could be saved were an ophthalmologist near at hand.

In every Base Hospital the ophthalmologist is an absolute necessity, this fact being recognized in all such hospitals in France. Here he is able to do a great deal in preparing injured eyes for further treatment at the convalescent camps, beside giving his attention to the more urgent cases which would result in blindness or reach a stage beyond repair before the patient should reach the main base.

The Royal Army Medical Corps hold that the efficiency of a Base Hospital does not depend upon the number of patients treated, but upon the number of empty beds available in case of an emergency. For this reason the length of stay of the average patient in a base hospital is from three to ten days and it is obvious that many operable cases cannot be attempted with so short a time for convalescence. However, eyes which require the use of an electro-magnet should be cared for here, as it is usually too late to do much by the time they reach the permanent base. Ulcers, small foreign bodies imbedded in the cornea, infected wounds about the eyes of which 85% are caused by shrapnel, and simple conjunctivitis can all be temporarily cared for at the base hospital by the ophthalmologist. His relation to the Surgical and Medical Staff by coöperation and consultation in deep injuries to the head is of no mean value.

The permanent base hospitals are located as a rule in the larger towns and cities removed from the front by many miles. Here the ophthalmologist is called upon to finish the work started by his brother surgeon at the front. Plastic surgery about the face is in abundance, and he has many cases to keep under observation for long periods. Of the latter are those which contain one or more foreign bodies. The present war seems to show that the presence of any kind of a sterile foreign body in the eye has no relation to the production of sympathetic ophthalmia. Capt. Ormund R. A. M. C. states that there is an almost total absence of sympathetic ophthalmia, and this is remarkable he says considering the large number of foreign bodies known to be in eyes.

Besides the above there are many cases of different types to be cared for such as traumatic cataract, ulcers, and those the result of lesions of the central nervous system.

Naturally, there are many eyes which are damaged beyond repair and in connection with them frightful facial deformities which make the patient a living nightmare. Here the ophthalmologist's first work in repairing the ravages of war is to make the patients as presentable as possible by means of plastic surgery, thereby improving their chances of earning a living.

In England all totally blind soldiers and sailors are taken to St. Dunstan's, a home for the blind, after the plastic work has been done, and there they are taught to read by touch beside being taught some trade such as rug or basket weaving. This enables them to earn their own living and also gives them the contentment of this ability, rather than being objects of charity for the remainder of their lives.

In conclusion it can be said that in modern warfare, the ophthalmologist has a definite and permanent place from the recruiting station to the permanent base hospital and as time goes on his position will be more firmly established than ever.

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# REPORTS OF TWO CLINICAL CASES OF SYMPATHETIC OPHTHALMIA SHOWN BEFORE THE CHICAGO OPHTHALMOLOGICAL SOCIETY.

BY

C. G. DARLING, M. D.

ATTENDING OCCULIST, COOK COUNTY HOSPITAL, CHICAGO.

Mr. J. J., seen first by me in November, 1916, gave the following history:

He was hit seven years ago with an iron bolt which broke his nose, jaw, and ruptured the right eyeball. The eye became quiet after three or four months, but it would get red and painful at times. Two months ago the left eye began to fail, and two weeks ago sight became so poor he could not see to read.

Examination showed an atrophic right eyeball with cornea about 1 cm. in diameter and symplepharon of the lower lid. Slight ciliary injection; no light perception. The left eye photophobia and lacrimation; slight ciliary injection; numerous very fine deposits on Decemets membrane. Aqueous cloudy, iris greenish in color; pupil sluggish; pupil dilated fully on the use of Atropine, leaving a couple of pigment spots on the anterior capsule of the lens. The fundus could be only faintly seen; left vision being 5/200.

The blind stump was at once removed and treatment begun with atropine, dionin, inunctions of mercury, sodium salicylate, sweats and hot applications to the eye. X-ray examinations of sinus and teeth negative. Wassermann negative. T. B. negative; tonsils negative. N. R. Negative. No leucocytes.

The sight steadily improved until by the end of December it was 20/50. Today there are very few spots on Decemets membrane and the vitreous only very slightly clouded. Vision is now 20/20 slowly with a + 200 Cyl.

Dr. Hill has examined some sections of the enucleated eye. These sections show a degenerated eyeball with bone formation. But sections examined show nothing typical of sympathetic, although there is a possibility such a change may be shown on examination of other parts of globe.

Mr. J. K. entered my service at the County Hospital October 26th, 1916. He gave a history of inflammation in the right eye for the past two months. No history of injury. Right eye had been failing for a month and for the past two weeks he had been unable to work on account of poorness of right vision.

Examination showed photophobia and lacrimation. R. E. slight ciliary injection; cornea clear; *no Keratitis punctata.* Iris greenish. Pattern lost. Pupil small, did not react to light. Fundus cannot be seen. R. V. 20/200.

L. E. Marked ciliary injection; cornea cloudy and area about 12 o'clock where there is a black spot showing where there has been a perforation of cornea with adherent iris root. Corneal limbus is ectatic for 2 mm. from 10-1:30 o'clock. Iris grey green and rolls forward in upper half against cornea as if there was an exudate behind it. Lens dislocated forward. Anterior chamber contains some lens matter. L. V. = light perception faintly; no projection. Tension 12 mm. X-ray examination of left eye: no foreign body, sinuses negative, teeth one alveolar abscess. Tonsils examined by Dr. Sonneschein showed pus in both. Wassermann, T. B. 10 mg. N. R. all negative. No leucocytosis on repeated examinations.

Left eye was removed. Right pupil dilated to 4 mm. in diameter after use of 2% atropine and cocaine, leaving a circle of pigment on the anterior lens capsule 2 mm. in diameter. Treatment given was inunctions of mercury, sodium salicylate, Benzosalin, atropine, the removal of tonsils after which sight improved for a few days and reached 20/70 falling again to 20/200 five days later. Removal of tooth which had abscess.

*The first deposits* on Decemets membrane very fine and dust-like could be seen in the right eye thirteen days after patient entered the hospital. These could only be seen by use of Coddington lens, four days later they were large and numerous and could be seen without lens. The iris appeared thickened November 17th. Nodes seen in iris November 20th. New vessels seen in the iris for first time December 11th. Vision gradually fell, by November 20th it was fingers at 3 ft.; January 6th at ½ ft. At the present vision is light perception with perfect projection. There is occlusion and seclusion of pupil which as you have seen is about 3 mm. in diameter. Tension in right eye has ranged from 10 to 15 mm. during the past 4½ months.

On the 10th of January the patient was given 10 million typhoid vaccine. He had a chill which lasted 25 minutes and two hours later temperature was 104. The next few days the eye was a little whiter but no lasting benefit as a result. The leucocyte count was 10600 before injection; 4,800 three hours later, and seven hours later was 20800. The eye that was removed has not been completely sectioned as yet, but shows the typical picture of sympathetic in all parts of the choroid of every section examined. Two points of interest in this case are the sympathetic inflammation being the result of a small perforating ulcer of the cornea, and the absence of a Keratitis Punctata in the sympathizing eye until late in the course of the disease.

I wish to thank Dr. E. V. L. Brown for his interest in this case, as he has had it under his observation since a few days after entrance to my service at the County Hospital.

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# AN OCULAR THERAPEUTIC LAMP.

BY

EDGAR J. GEORGE, M. D., F. A. C. S., AND JULIUS A. TOREN, M. D.

CHICAGO.

I have for some years employed the leucodescent or therapeutic lamp in the treatment of corneal ulcers, iritis, episcleritis, and ciliary neuralgia. The action of the light has proved to be not only analgesic but also stimulating to the tissues of the eye, and is therefore a most excellent therapeutic agent. In the treatment given, the light was applied directly to the closed lids at such a distance as produced a temperature of 115° F. 115° F. I have found to be the maximum temperature that the skin can endure, and even this cannot be tolerated for more than a few minutes without stroking the part with the hand to relieve the stinging sensation. It occurred to me that if a glass of particular color or an electric light bulb could be found which would exclude the irritating rays of light, treatments might be applied directly to the open eye. Then perhaps a greater degree of heat could be endured, to such extent that pathogenic micro-organisms could be destroyed. Such action would be particularly desirable in cases of infected diseases of the cornea, especially primary corneal ulcers, which are usually the result of an invasion of micro-organisms into the corneal tissue through an abrasion of the epithelium, known as infected ulcers. These ulcers under usual circumstances go from bad to worse, resisting all methods of local treatment including cauterization, owing to the extension of the invasion beyond the necrotic area.

It suffices to say that the violet bulb was found to comply in every respect. It was found that the patient was able to look directly at the center of the globe within the focal distance of the light without photophobia or irritation, and to tolerate well a temperature of 170° F. for fifteen minutes or longer.

Dr. Toren will narrate his findings as to the germicidal effect of the light and the physical properties.

A photometric determination was made by the use of sensitized photographic paper for the purpose of determining the proportion of actinic (chemical) rays given out by the violet lamp as compared with an uncolored bulb of the same size, type and wattage. It was found that the violet lamp required four times the length of exposure to produce the some precipitation of silver as that required by the uncolored lamp. The number of actinic rays given out by the violet lamp is therefore approximately one-fourth that of the uncolored lamp.

Spectroscopic examination of the violet bulb lamp shows a narrow bright band in the red, nothing in the orange, yellow, or green, and excellent illumination of the blue and violet end of the spectrum.

The focal length of the lamp was determined by exposing sheets of sensitized paper at various distances from the lamp until the point of maximum concentration of rays was found at about 60 mm. from the front surface of the bulb.

For the uses designated in this article it is necessary that the lamps be standardized as to focal distance, character of the light, and amount of heat produced.

The table given below shows the temperature acquired by a thermometer at a distance of 60 mm., both in air and in a tube of culture-medium, in different lengths of time. The table also shows the effect of exposure to the lamp of bouillon cultures of virulent strains of staphylococcus pyogenes albus and aureus and streptococcus pyogenes. The tubes used were 13 mm. in diameter, were filled to the depth of 2 cm., and were placed 60 mm. distant from the lamp. These organisms were chosen for the experiment because of their high resistance to heat, the assumption being that other less resistant organisms (pneumococcus, etc.) encountered in the eye would certainly succumb to temperatures which would kill the staphylococcus and the streptococcus. The minimum thermal death-point of the staphylococcus is 149° F. for 15 minutes, 158° F. for 10 minutes, and 176° F. for 5 minutes. The thermal death-point of the streptococus is 129° F. for 15 minutes; of the pneumococcus is 113° F. for 15 minutes.

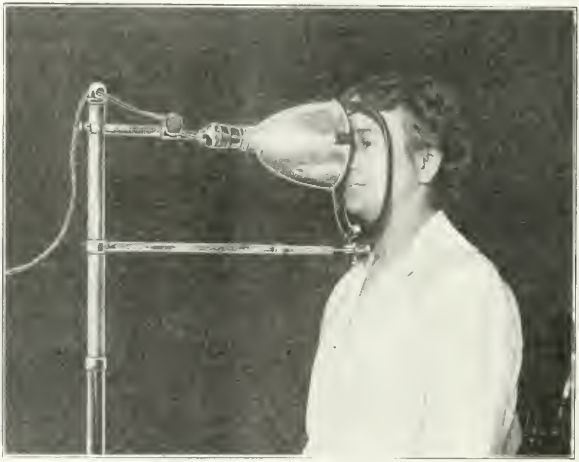
| | Staph. aureus and albus 60 mm. | Strepto-coccus 60 mm. | Thermom. in air 60 mm. | Thermom. in culture tube 60 mm. |
|---|---|---|---|---|
| Start | | | 75° F. | 75° F. |
| 5 min. | + | + | 153° F. | 111° F. |
| 10 min. | + | + | 167° F. | 139° F. |
| 12 min. | + | ± | 169° F. | 148° F. |
| 13 min. | ± | — | 169° F. | 151° F. |
| 14 min. | ± | — | 169½° F. | 155° F. |
| 15 min. | — | — | 170° F. | 157° F. |
| 16 min. | — | — | 170° F. | 160° F. |
| 18 min. | — | — | 170° F. | 164° F. |
| 20 min. | — | — | 170° F. | 167° F. |

The plus sign indicates that the cultures were not affected, the plus and minus (±) that the growth was inhibited, and the minus that they were killed.

It seems probable that the germicidal properties of this lamp are due not only to the heat produced but also to the light. It is well known that the blue-violet end of the spectrum has greater germicidal properties than any other portion. The fact that the temperatures produced are neither great enough nor continued for a sufficient length of time to be alone certainly germicidal for the organisms used would seem further verification of this assumption.

The lamp itself is an ordinary small therapeutic lamp, one that is already on the market. It consists of an aluminum parabolic reflector containing a 50 watt electric light with a violet glass globe. The lamp has been mounted on an adjustable stand with an adjustable face rest as shown in the illustration. The adjustments are so arranged that when placed with the patient in a sitting position neither the lamp nor the patient require much attention during a treatment. The most essential and important part of the treatment is the accurate adjustment of the lamp to the eye. It must be adjusted so that the cornea will be at a distance of 60 mm. from the front of the bulb (which is the focal distance of the reflector and will give a temperature of 170° F. in 15 minutes) and must be accurately centered. 170° F. was found to be the most effective temperature for the treatment of the ocular diseases mentioned.

It is necessary to place a small piece of paper, the size of a prescription blank, against the forehead as a protection from the heat, as the forehead seems to be the only point to suffer from irritation. The patient is directed to look directly and constantly at the center of the bulb with wide-open eye. If an ulcer is situated near the upper margin of the cornea, it may be necessary for the patient to lift the upper lid with the forefinger, or for an assistant to do it for him, but the lid should be lowered at intervals to permit moistening of the eye. Ordinarily patients can take their own treatments without assistance after the lamp is properly placed and adjusted. The length of time required for a treatment is usually fifteen minutes. This time of treatment can be prolonged if necessary, but fifteen minutes seems to be a sufficient time in which to secure a stimulating effect on the tissues and to destroy or render inert the infecting organisms. Treatments should be given daily.



Lamp with Headrest Adjusted for Treatment.

The light treatment is also effective in the treatment of corneal ulcers of the asthenic. It increases the circulation of the blood and lymph, thereby accelerating tissue changes of the eye. It becomes more effective, however, in such cases when a high frequency electrical treatment is given in conjunction. High frequency increases metabolism and consequently improves the general nutrition.

A number of cases of different varieties of corneal ulcers, including hypopyon, that have been treated successfully with the ocular therapeutic lamp could be cited, but owing to the length of this article they will be reported at some future time. However, in conclusion, it may be said that the resultant scar tissue or corneal opacities that follow the healing of ulcers are markedly less than those which usually occur, and in some cases are entirely absent. The light is applicable to the treatment of almost all forms of corneal disease (including corneal opacities) iritis, irido-cyclitis, episcleritis, orbital abscesses, and in fact all diseases of the eye where dry heat is indicated. In cases of recent injury the lamp should be used for prophylaxis against possible infection.

The lamp is made by McElliott and Dahl, 175 N. State St., Chicago, is properly standardized by them as to the color of the globe, the wattage of the filament and the focal point of the reflector.

# THE NEW INCISION AND CRUSHING OPERATION FOR ADVANCED CASES OF TRACHOMA, WHERE THE OPERATION OF COMBINED EXCISION OF CONJUNCTIVA AND TARSUS CARTILAGE IS REFUSED.

BY
DANIEL W. WHITE, M. D., AND PETER COPE WHITE, M. D.
TULSA, OKLA.

(Illustrated)

It has been our experience for many years to examine patients who presented advanced cases of Trachoma of the eyelids with no apparent objective or subjective corneal symptoms. In a complete trachomatous examination many cases presented normal vision, and except by a retinoscopic test (Dr. Daniel W. White's test) the cornea appeared like other corneae. In other cases deep smooth opacities were found—with the resultant loss of vision. The patient in this class of cases would not undergo the proposed radical removal of the conjunctiva and tarsus, but desired a seemingly less surgical measure. In order to secure results and remove the pathologic tissue as nearly as possible we resorted to the method which we have used in eighty-six (86) cases. "This method has given more benefit than any other surgical measure I have used, with the exception of the complete removal of the tarsus and conjunctiva." (From U. S. Government Eye Reports of Dr. Daniel W. White.) This method is applicable to the palpebral cicatricial cases, where the deeper tissues are involved, and to the beefsteak cicatricial type, and to the smooth (chronic conjunctivitis) congested type of cases.

*The Operation.* An incision is made through the palpebral conjunctiva from the inner to the outer canthus of the eyelid, a few mm. from the margin (Fig. 2). The conjunctiva is dissected from the tarsus beneath, from above downward to the edge of the cartilage (the edge), which is the beginning of the ocular conjunctiva. The dissection is carried out with a small flat scissors (Fig. 3). The next step is the incision of the tarsus from the inner to the outer canthus, using the same guide-line as in the incision of the palpebral conjunctiva. The tarsus is now dissected from the lower tissues beneath (Fig. 4) and a small scissors is introduced; one blade beneath the cartilage and one blade on top of the cartilage, and numerous vertical incisions are made in the cartilage (Fig. 5). A small roller forceps is used to crush the small vertical strips, by placing one roller above the cartilage and one beneath. The roller is beneath the palpebral conjunctiva (Fig. 6). Or the operator can crush the cicatricial conjunctiva and also the

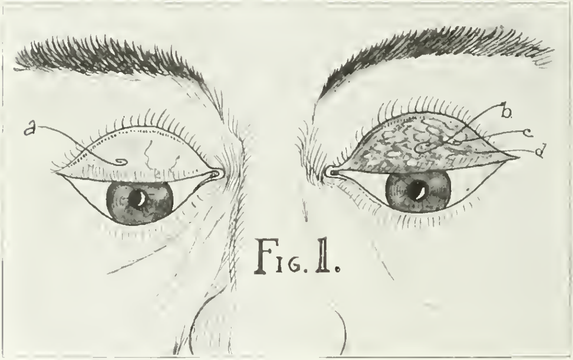


FIG. 1.

Fig. 1.

a—Normal eyelid. b—Trachomatous eyelid of 15 years' duration. c—Knobs of cicatricial tissue. d—Red "islands" of reddish cicatricial tissue.

incised cartilage by using the roller as in a common roller operation (Fig. 6). The conjunctiva is sutured as in the removal of the tarsus and conjunctiva operation (Fig. 7), (Fig. 7a). The almost desired result is accomplished at one stroke, which may take nature's pathological measures years to do if such a termination is produced—a disappearance of the cartilage or fatty infiltration and atrophic degeneration, only a web-like net tissue remains underneath the palpebral conjunctiva. This

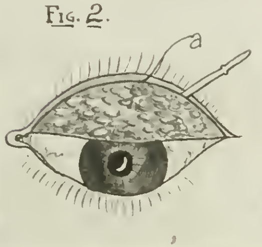


Fig. 2.
a—Incision through trachomatous conjunctiva from the inner to the outer canthus.

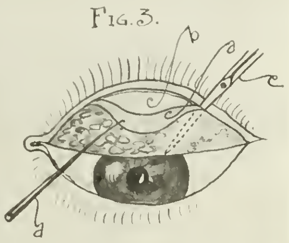


Fig. 3.
a—Trachomatous conjunctiva dissected and everted. b—Pathologic cartilage. c—Scissor dissection of palpebral conjunctiva to junction of palpebral and ocular conjunctiva.

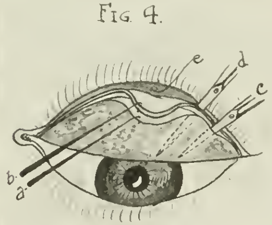


Fig. 4.
a—Showing dissection of pathologic palpebral conjunctiva. b—Showing dissection of pathologic tarsal cartilage. c—Dissection scissors beneath the conjunctiva. d—Scissors beneath the cartilage. e—Tissue beneath cartilage.

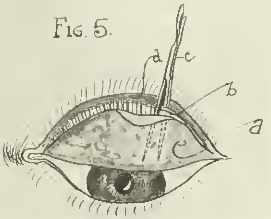


Fig. 5.
a—Pathologic conjunctiva. b—Pathologic cartilage. c—Showing pathologic cartilage being incised by small scissors. One blade of scissors is beneath cartilage and the other between cartilage and conjunctiva. d—Tissue beneath cartilage.

tissue will finally become a *Thin Stiff Fascia*, which will act as a new modified cartilage for the lid. The weight and pathologic tissue (cartilage) is practically eliminated and the dense,

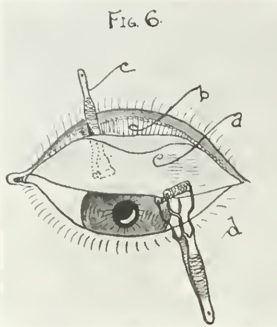


Fig. 6.
a—Pathologic conjunctiva everted after dissection. b—Cartilage incised into small thin strips. c—Roller forceps crushing and milking the pathologic cartilage. d—Showing roller method of crushing and milking cartilage and at same time, crushing the pathologic conjunctiva.

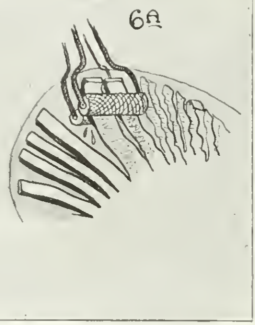


Fig. 6A.
Enlarged view of roller forceps and pathologic strips of cartilage.

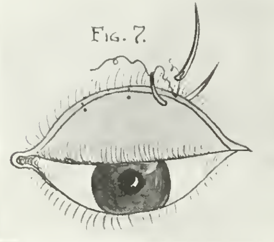


Fig. 7.
Conjunctival flaps replaced and sutures introduced through conjunctiva and emerging externally near eye lashes and tied. The pathologic cartilage has been milked and crushed.

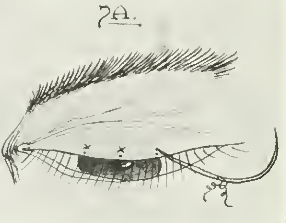


Fig. 7A.
Shows tied sutures on external skin of eye-lid near eye lashes.

now smooth, cicatricial palpebral conjunctiva does not bear down, or hug the cornea, thus bringing on the sequelae of trachoma.

The other technic in this operation is not as popular with the authors as the above just cited. In this technic the authors use the method in use for many years by making vertical incisions from the fold of the everted eyelid to its margin and

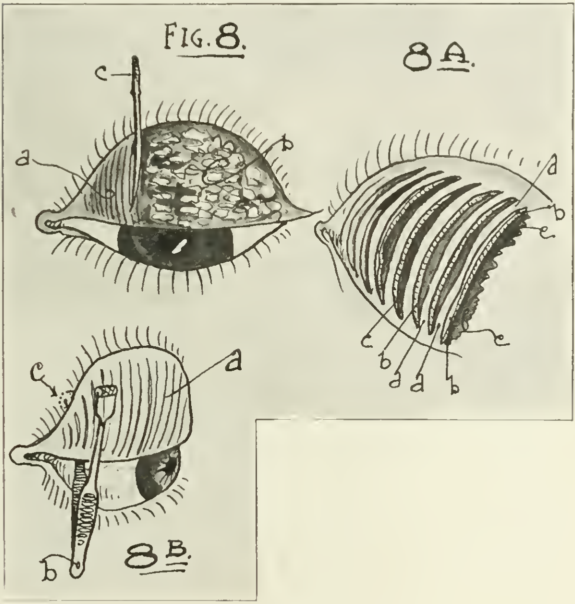


**Fig. 8.**
Showing method of incising palpebral conjunctiva and cartilage preparatory to rolling and squeezing with roller forceps. a—Incised portion of conjunctiva and cartilage. (Note closeness of incisions and narrow strips as result.) b—Trachomatous condition of upper eye lid.

Fig. 8A.
Enlarged view of conjunctiva and cartilage beneath after incisions have been made. a—Conjunctiva strips. b—Cartilage Strips. c—Tissue beneath.

Fig. 8B.
Roller forceps milking and crushing conjunctiva and cartilage after incisions have been made. a—Conjunctiva. b—Roller forceps. c—Lower roller beneath lid and skin of face.

then supplanting this with roller forceps in crushing the incised conjunctiva and tarsal cartilage as in the common roller expression operation. After a number of years investigation (by Daniel W. White) among the Indians of the United States who had this technic when operated on, it was found a number of cases of entropion resulted from the contractions of the crushed conjunctiva and cartilage, and the final condition in many cases was less satisfactory than in the first technic described in this article. (Figs. 8 and 8a.) (Fig. 8b.)

This technic though is far superior to any form of drug treatment or roller or expression operation.

In an article in preparation the authors will illustrate with many sketches a much more simple procedure than is generally used for the removal of the tarsal cartilage and palpebral cartilage for intractable and advanced cases of trachoma.

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## A SIMPLE RAPID PERIMETER.

BY
NORMAN W. PRICE, B. S., M. D.
NIAGARA FALLS, N. Y.

The accompanying cut is that of a perimeter that may be used at the bedside or in the office, that will tire neither the patient nor the oculist, and is rapid and accurate.

A is a dial marked off in divisions of five degrees, each

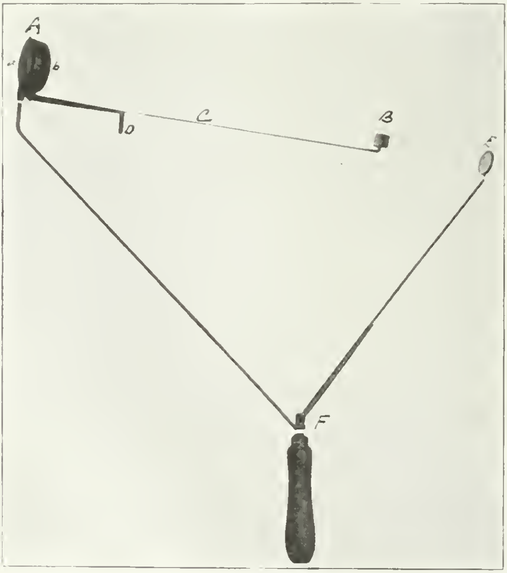

Fig. 1. New Perimeter.

half beginning at zero and ending at ninety degrees. This dial carries a hand which is attached to a bevel gear so that when the arm C is carried over an arc of 90° the hand passes half way around the dial. The front part of A which is marked (b) turns on the back (a), much as a nut turns on a bolt, but arranged so that its excursion is only 180°. The small projection at A marks the angle of this excursion on the side of the instrument which is divided into divisions of fifteen degrees, not shown plainly on the figure. C is an arm thirteen inches long, carrying at B a cube each side of which is one sq. cm. and is colored either white, red, blue, green and yellow, while the remaining side is divided in quarters, each quarter colored either white, red, green and blue. Thus five faces have squares ten mm. across while the small ones are five.

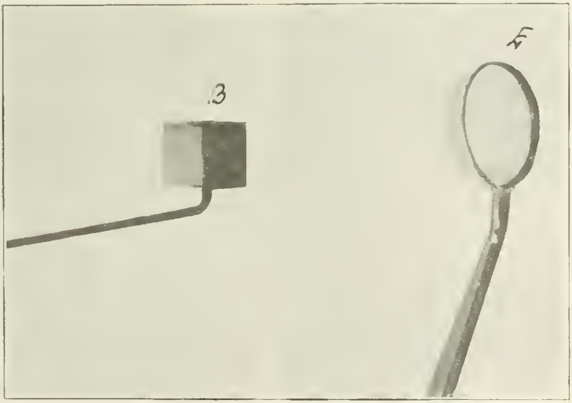

Fig. 2. Close Up, Showing Mirror and Color Carrier.

D is a handle for the oculist to work the arm and yet have his fingers outside of the lines of vision of the patient. E is a small mirror and F is a hinge simply to fold the instrument in a small space.

The patient takes the instrument in his own hand and places the point A just under either eye and looks in the mirror, the remaining eye being closed. He is to watch the image of his eye in the mirror thus keeping his line of vision perfectly straight with the instrument. The oculist now places the dial at any angle, say so that a line through 0° and 90° forms a vertical line, then the arm C will move horizontally through an arc of 180°. The patient sees how far he can see the color facing on the cube, as in any other perimeter. Then the line through 0° and 90° may be turned at any other angle with the arm C always at right angles to it.

### What Are Its Advantages?

1. It is accurate, and consumes much less time than the old perimeters.

2. It is comfortable for the patient and oculist as both are sitting and patient's face is not held rigid.

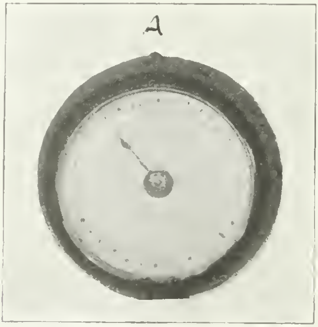

Fig. 3. Dial to Record the Degrees.

3. It may be used anywhere, in the office, hospital, or the bedside.

4. It is comparatively cheap, and takes up little room, and so handy, no dust need collect on it from disuse.

This instrument is so handy, rapid and comfortable compared to the old instruments, I am surprised a similar one has not been devised before.

TRACHOMA
AND ITS COMPLICATIONS IN EGYPT
By A. F. MacCALLAN, F.R.C.S.
Director of Ophthalmic Hospitals, Egypt
Price $2.50
Cambridge University Press, England
agents in the united states
G. P. Putnam's Sons, 2 West 45th Street, New York City

# REPORTS OF SOCIETIES

## COLORADO OPHTHALMOLOGICAL SOCIETY.

J. W. LEHAN, M. D., PRESIDING.

JANUARY 20TH, 1917.

### Brain Tumor.

Dr. W. A. Sedwick presented Mrs. E. J. H., age 47. Married. Always perfectly healthy until a year ago, except for some pelvic disturbance, for which she was operated; five healthy children, the youngest two years of age. No miscarriages. In past year she has been very nervous and has had pain in her eyes, but cannot describe it. Vision has gradually failed until now it is 1/80 O. U. There has been a feeling of drawing in the right side of face. Considerable stupor for the past five or six months, and once it was hard to awaken her for three days. She would brighten a little and seem to know some one was present, but would then lapse again. Has had severe headaches, especially in the afternoon with sick stomach and projectile vomiting. Memory practically gone. Extremely constipated, but thinks this started following some pelvic operation some three years ago. Pain all over head, but worse on top.

Status Praesens: In addition to above—pupils react to light and convergence and consensually; media clear; optic atrophy O. D.; papillitis O. S.: fifth, normal. mastication; sensory fifth, no tender spots. Anaesthesia of upper branches on right side to all qualities. Seventh nerve, slight drooping of the corner of the mouth and facial paralysis, which is increasing. All tendon reflexes right side increased. Romberg positive. Intention tremor on right side; patellar reflex exaggerated on the right; staggers in gait at times; no Kernig symptoms. Negative luetic history and negative Wassermann. Urine negative; no hemianopsia.

Tumor probably of Pons—right localization.

*DISCUSSION.*

Dr. J. A. Patterson strongly asserted that it was useless to have a Wassermann blood reaction in cases where lues was suspected in the nervous system, that the spinal fluid must be examined for that purpose. He cited the following case: a man of about 62 or 63 came complaining of diplopia, which is homonymous, and comes and goes. He was unable to demonstrate the muscle affected, although at times a 6 degree prism base out will produce instant fusion, at other times not. Both images are on the same level; no vertical diplopia. There is a suspicion of lateral nystagmus, but it is too slow to be accurately recorded and cannot be altered by position. The patient complains of dizziness when thrown back quickly in a barber's chair, attempt to take the same position in an office reclining chair failed to cause dizziness or nystagmus.

O. D. V. 6/9, w. + O. 50cy. ax. 180 V. 6/7. Vision comes and goes. O. S. V. 6/15, w. + O. 50sp. ⌢ + O. 50cy. ax. 180 V. 6/6.

Some Romberg; tendency to fall to the left. Patellar reflexes greatly exaggerated. Four years ago Wassermann for blood, negative. O. D. Pupil 5.5 mm.; does not contract readily to light. O. S. 5 mm.; light reaction prompter. Consensual and convergent reactions normal.

Fields: O. D. Form about normal, color inside 20, with interlacing red and blue. O. S. Normal, form and color.

Ophthalmoscopy: Nerve not particularly atrophic, very large opacity about center of vitreous, small vessels on disc are tortuous. There are patches of pigment above nerve and toward periphery very large series of patches up and in at 2:00 o'clock. This pigment is distributed everywhere toward periphery and appears like retinitis pigmentosa excepting that the patches are located distinctly along the vessels and are below the vessels. The fundus is tigroid in appearance and there are glistening crystals in macula.

Hearing: Right ear, whisper 2 meters, left 6 meters.

Spinal fluid shows a very positive Wassermann. He is receiving 606 by the spinal method.

Dr. Edward Jackson spoke of a case he had seen recently with a weak superior rectus. It was hard to determine just what trouble was present with the ocular muscles. The patient has had some rheumatism, etc., but it was impossible to determine anything definite in his condition. He feels that some of these obscure cases are due to the central nervous system and it is very difficult to make the diagnosis from the ocular lesion alone. He believes that a spinal fluid Wassermann is best in such obscure cases to determine the etiology.

Dr. W. A. Sedwick asked if a decompression operation will be of any benefit to his patient and if it will save the vision in the better, or left eye, as this is the one showing the papillitis.

Dr. M. Black thinks the papillitis is too old for the patient to be benefitted by the decompression operation. He believes that it will be very difficult to do anything for this case. He thinks a decompression operation might tide the patient over a critical period in the early stages of a papillitis, but in this case, on account of the long standing, it probably won't do any good at all.

Dr. W. H. Crisp spoke of a Jewess, from a Tuberculosis Sanitarium, whom he had under observation. She had had loss of weight, but the lung signs were all negative. She consulted him because of headache and blind spells. He found choked discs and, in spite of all he could do for her, her eyes went from bad to worse. She was seen by a neurologist in consultation and a decompression operation was done without any improvement. Blindness came on slowly, but surely; and, therefore, Dr. Crisp thinks Dr. Sedwick's case will not be improved by a decompression operation.

Dr George E. Neuhaus saw Dr. Sedwick's case in consultation, but, unfortunately, couldn't be present the evening of the meeting to discuss the case.

### Unusual Cataracts.

Dr. D. A. Strickler presented Mrs. G. W., age 28. Dimness of vision in the right eye, which she first noticed about five years ago. Has been subject to headaches since that period. Has had two children, one seven and the other three years of age. No history given as to the cause of the trouble.

In the right eye lenticular opacities were found which were more dense in the posterior central region. Less dense opacities project forward like the petals of an opening flower. In the left eye, one larger opacity could be seen extending forward with numerous pin point opacities spreading through the anterior portion of the lens.

V. O. D. 20/200; V. O. S. 20/30; with correcting lenses V. O. U.=20/30 on January 5th and on January 20th=20/20.

This case is presented because of the unusual character of the opacities.

Is this the coralliform cataract of Nettleship and Ogilvie? Suggestions as to the probable cause will be appreciated.

*DISCUSSION.*

Dr. M. Black thinks this case is of congenital origin. The patient can close her poor right eye without closing the left, but cannot close the good left eye without closing the right. In other words, he believes this winking test, when positive, is almost pathognemonic of a congenital etiology, as this sign is positive in approximately 70% of all cases. The important thing is that the poor eye can be closed without the other, but not vice versa. He wouldn't operate this case. He had a similar case in a boy 18, several years ago; the vision was poor. He operated, and obtained a vision of 15/20 each eye following the operation.

Dr. C. E. Walker advised a patient twenty years ago with similar trouble to let well enough alone. He feels as long as the patient has good vision he shouldn't be operated upon.

**Severe Eye Injury.**

Dr. E. E. McKeown presented an Italian who showed a severe injury to O. S. He was struck in the left eye with a screw driver from below, so as to make a horizontal linear incision about one inch long. There was extensive loss of vitreous and a large prolapse of the iris. The prolapsed iris was excised. Injury occurred a few months ago and at the time of the meeting the left eye showed the effects of a very severe injury. Dr. McKeown has advised enucleation of the eye in this case, but this has been refused.

*DISCUSSION.*

Dr. Melville Black said this eye was one of the most dangerous he had seen for a long time. He believes the eye should be enucleated at once in order to save the other eye.

Dr. C. E. Walker said he had advised enucleation when he saw the case in consultation with Drs. Foster and McKeown.

**Severe Injury of Both Eyes.**

Dr. F. R. Spencer presented Master B. E. age 8. Master B. E. had both eyes injured November 3rd, as a result of applying a match to some dynamite caps. These exploded in his hands and foreign bodies penetrated each eye ball.

His eyes were examined, within an hour after the injury, at which time his right eye ball revealed a punctured wound about two mm. from the inner limbus in the sclera. The iris had prolapsed through this wound so that the pupil was oval horizontally, much as it is now. The left cornea showed a vertical linear puncture about 2 mm. from the limbus with a cut in the iris and the anterior chamber so full of blood the other structures could not be easily recognized.

He was immediately sent to the hospital and the prolapsed iris excised. Atropine was instilled and the child kept in bed until healing took place.

Repeated X-rays by Dr. Clay Gitlin have been negative. I felt sure there must be pieces of copper in each eye, but the X-ray has contradicted this. In all probability small pieces of dirt or gravel were the foreign bodies which entered the wound. He shows now the scars of several very small wounds in the lids and one or two at other points in the sclera.

December 26th, 1916, V. O. D. 6/20 and V. O. S. one and one-half/60. The right fundus revealed a large floating veil in the vitreous, which is apparently attached to the old scleral wound at the inner limbus. Vision of O. D. fluctuates somewhat, as the position of this veil obscures vision at one time and permits better vision at another. However, I have been able to improve his vision from 6/20-1 to 6/12—with a plus 1.50 sphere combined with a plus 1.00 cylinder axis 105 for O. D. In spite of the free use of atropine for the left eye the pupil is eccentric in shape, up and in, and the iris and lens show an organized exudate, which consists of lens matter, debris, blood, etc. This eye has not done well in spite of all efforts to save the vision.

(While this patient was being examined by the members, Dr. J. A. Patterson found a glistening metallic point on the veil of exudate O. D., internal, inferior and posterior to the lens.)

*DISCUSSION.*

Dr. M. Black said he had examined a man twenty-six years ago following the explosion of a tomato can full of miners' caps. This man had taken up mining without any previous training and did not realize the danger he was subjected to in handling these. Dr. Black said he was able to save one eye with 20/20 vision after several months of hard work. This vision was obtained after a cataract had been removed. This patient left Denver and went over to Grand Junction. Several years later while working in a hay field near Grand Junction, the vision failed very suddenly. He came back to Dr. Black with extensive retinal detachment. This eye was blind after twelve years of useful vision. The first blind eye was enucleated soon after the injury, as it was impossible to save this one.

Dr. Black also recalled another similar case which he presented before this society several years ago. One eye had to be enucleated, but the other eye was saved in spite of a metallic body in the vitreous. This could be seen as a glistening point in the vitreous for some time after the injury. Later on it dropped down into the lower part of the vitreous chamber where it became surrounded by exudate and could not be seen with the ophthalmoscope. His vision is 20/20 today. This metallic substance is non-magnetic and of course cannot be removed with the magnet.

Dr. William H. Crisp believes that the foreign body in Dr. Spencer's case moves during movements of the eye, hence it has failed to cast a shadow on the X-ray plate. The foreign body is attached in the veil of exudate, just back of the lens, and this moves freely with movements of the eye, so that the foreign body does not remain in one position long enough to cast a shadow.

### Massive Hemorrhage Into the Vitreous.

Dr. Spencer presented Mrs. M. T. W., age 61. Married. First examined January 10th, 1917.

She gives a history of very sudden failure of vision in O. D. on December 19th. She states that she has been able to see but very little with this eye since that date. She thinks the left eye has been worse since that time. V. O. D. can count fingers only; V. O. S. 6/12—and J No. 8.

Each eyelid reveals an old cicatricial trachoma with pannus above and old corneal cicatrices in the upper half of the right cornea. Tension, by Gradle's tonometer, is ten to eleven mm. for each eye.

The left fundus revealed tortuous vessels, but with this exception was practically negative. The right fundus showed a very extensive hemorrhage into the vitreous, so that it was impossible to make out any of the details in the right eye.

The blood pressure and the urine are both negative according to her family physician.

Diagnosis: Probably thrombosis of the central retinal vein, although the hemorrhage may have occurred from the retinal vessels without thrombosis of the central vein.

The Wassermann and tuberculin tests have not been made in this case.

*DISCUSSION.*

Dr. W. H. Crisp thinks this case is one of massive hemorrhages into the vitreous from some of the retinal vessels, probably from the veins due to arteriosclerosis, as her age explains this. He does not think that this patient necessarily had thrombosis of the central vein.

Dr. John A. Donovan, of Butte, Montana, believes such cases should be given a bad prognosis, as they usually do not live very long after such an extensive hemorrhage into the vitreous. He thinks this patient may live two or three years more.

### Unusual Clover Leaf Cataracts.

Dr. F. R. Spencer presented Mrs. C. H., age 28. Married. First examined January 12th, 1917.

Recently she has been having severe headaches, her eyes tire easily and the eyeballs ache, especially after any near vision. She thinks this has been worse during the past year, but she has had some trouble since early childhood. She has worn lenses for a number of years. Has been told by several oculists that she has cataracts.

V. O. D. 6/20 plus and J. No. 6; V. O. S. 6/15 and J. No. 5. Each lower canaliculus has been slit during treatment of the tear ducts.

Keratometer O. D. one diopter 100 plus and 10—; O. S. one diopter 80 plus 170—. Under hyoscyamin: V. O. D. 6/15 equals 6/12-2 with a —0.75 Cylinder Axis 25; V. O. S. 6/15 equals 6/15 with a —0.50 cylinder axis 145. The examination of the fundi revealed a three leaf clover cataract in the posterior lens cortex of each eye, with two leaves superior and one leaf inferior. The central area between the three leaves is also quite opaque, so the central vision is greatly reduced. Each disc looks red as one would expect through hazy media. The ocular muscles are practically negative in spite of the defective vision.

*DISCUSSION.*

Dr. Melville Black suggested 5% dionin for each eye at bedtime every alternate week. He believes dionin used in this way produces better results than if used continuously, as patients do not gain so much tolerance for the drug as they do if used constantly. He believes that the central portion of the cataractous lens can be cleared, as it was formerly, and she will regain her former vision.

Dr. D. A. Strickler advised mercuric cyanide to be used almost entirely along the lines suggested by Dr. E. L. Jones of Cumberland, Md., at the first Colorado Ophthalmological Congress.

**Congenital Ptosis.**

Dr. F. R. Spencer presented Mr. E. H., age 27, first examined September 11th, 1916.

Occupation—Mill man. Married. He gives a history of ptosis since fifteen or sixteen years of age. He thinks this has gradually increased since that time, but has been much worse for the past three years. His mother, maternal grandmother, two maternal aunts, and one brother all have similar trouble. His younger brother's lids began to droop at the age of twenty-two years. His mother had great difficulty in raising her lids at all.

V. O. U. 6/60 and J. No. 2. The keratometer showed a diopter and a half of astigmatism 130 plus 40— O. D. and 75 plus 165— O. S. Under hyoscyamin his vision was improved from 6/60 to 6/7.5— O. D. with a —3.00 sphere combined with a —1.50 cylinder axis 40 and O. S. with a —3.50 sphere combined with a —1.00 cylinder axis 135. He was given this correction for constant use.

The anterior segments and the fundi are negative with the exception of the congenital ptosis of each eye. He usually fixes with the right eye and the left is often divergent ten or fifteen degrees. By repeated tests the divergence was found to be alternating, although the amount was fairly constant. His ab-, ad-, super-, and subversion were all very limited and he was unable to raise either eyelid without the assistance of the frontalis muscle. I believe this case has a bilateral congenital absence of the superior rectus and the levator of the upper lid. The convergence is also quite limited.

September 26th, under cocain anaesthesia, a Tansley-Hunt operation for congenital ptosis upon each upper lid was performed, with very slight over correction at the time, making sure that the upper lid would completely cover the cornea during closure of the lids without additional effort upon his part.

*DISCUSSION.*

Dr. Black mentioned a case he had presented formerly before this society. One eye only was operated upon for congenital ptosis by the Tansley-Hunt method. Eleven months later a cyst developed in the region of the pedicle used to draw the upper lid upward. He believed this cyst was due to the fact that he had left a little of the skin on the pedicle instead of removing all of it. He made a short incision and with the curette removed the cyst and the patient now has a good result.

**Marginal Serpent Ulcer.**

Dr. H. R. Burns reported a case of marginal serpent ulcer treated by Prince's method of pasteurization. He believes this was a pneumococcus ulcer although he did not have swabs made to prove this. The patient was sent to the hospital the day he saw the case in his office and the pasteurization treatment was immediately used. At first there didn't seem to be any improvement in the ulcer, but later there was very marked and gratifying improvement following only one application by this method.

Dr. D. A. Strickler had the pleasure of seeing this case, and commented upon the promptness with which the ulcer healed.

**Anophthalmia.**

Dr. W. F. Matson reported a case of anophthalmia which was seen in consultation by Drs. Edward Jackson and C. E. Walker while the child was at Mercy Hospital.

Baby, male, born Jan. 9, 1917. Tentatively a case of anophthalmia. Case was seen by Drs. Jackson and Walker, January 18, 1917.

Literature is extremely barren on this anomaly. Fuchs speaks of apparent anophthalmia, but always of a small eye or cryptophthalmos. Parsons, in his recent excellent and complete pathology of the eye, scarcely mentions it.

In this case no palpation or examination can detect an eye or a mass one could assume might be an eye. A short palpebral slit, six or seven mm. long, shows cilia, both upper and lower, in both eyes. Examining the culdesac by means of strabismus hooks, one sees a pocket only, lined with mucosa. Moisture was present, probably from the glands of the conjunctiva, as we are not sure of lachrymal gland. There is a supraorbital notch in both eyes. There is no heredity traceable on either side. Both parents are well. Previous child is a girl, who is living and well.

*DISCUSSION.*

Dr. Edward Jackson said this case was one of the most complete cases of anophthalmia he has seen. The orbits were very small, although the lids, cilia, and conjunctiva showed some development. He could not find any eye ball, although there were some embryonic structures at the apex of the orbit. He thinks the orbit should be examined to gratify the parents, but the patient will not be benefited by such a procedure. He thinks the superficial structures are an index of the development of the optic nerve, and since the superficial structures, such as the lids, cilia, and conjunctiva are developed, there must be some rudimentary optic nerve.

Dr. C. E. Walker said there wasn't an eye in either orbit. One eye showed a purulent discharge the day he saw the case and he was able to find the conjunctiva readily. He believed the eye would be above, as the lids were closed, and one should look upward to find the cornea if it is present. He believes it would be wise to enlarge the palpebral slit in this case and see how much of an eye ball exists. It was possible to evert the lids a very little by using strabismus hooks. These were used by Drs. Jackson, Walker and Matson, while examining this baby.

Dr. E. E. McKeown mentioned a baby, nine months old, which he has under observation, with a very rudimentary eye. He asked when the child should be given a shell eye in order to develop the orbit and face. The parents have refused any operative procedure, so it will be necessary to treat this case along conservative lines.

Dr. C. E. Walker said he wouldn't undertake the responsibility of such a case as Dr. McKeown's, unless the parents were willing to permit an operation or to co-operate in every way possible to obtain the best results.

Dr. Edward Jackson believes the rudimentary eye ball, in Dr. McKeown's case, will do more to develop the orbit than any artificial eye. He would not recommend an artificial eye if the rudimentary eye is sufficient to fill the orbit only partly.

Dr. F. R. Spencer said the rudimentary eye would help to develop the orbit and would act, following some modified Mules' operation, better than an artificial eye. In children it is very important to have something in the orbit to develop the orbit and the side of the face, but he does not believe in Dr. McKeown's case that an artificial eye is very necessary.

**Polycythemia.**

Dr. J. A. Patterson presented Mrs. H. W. H., age 38. Has been subject to hay fever and asthma since childhood. Has been in fairly good health until about 8 months ago, in Spokane, when she had an attack, accompanied by vomiting. Had gradually lost 35 lbs. in weight, admits tarlike stools with this attack. The hay fever symptoms occurred regardless of season.

but she has had none since July 1915. Now suffering intensely from asthma.

Previous History: Had measles at 19 or 20 years of age, with no complications. Had catarrhal fever, probably bronchitis, when residing in Nebraska, with slight asthmatic symptoms when she was nine years old. Had jaundice when 14 years old.

Tonsils, nose, nasopharynx, pharynx and larynx all negative.

Trachea dark red as if lining was congested.

Dr. Swan reports urine contains albumen and a few hyaline casts. Blood pressure, systolic—200, diastolic—140. Chest characteristic of asthma. Heart negative.

January 15, 1917. Blurring of sight of O. S. noticed very distinctly 6 days ago, and to a less degree a week before that. Her asthma is better, now rarely bothering her. Dr. Swan reports Polycythemia.

Dr. Swan reports the following blood examination:

November 21, 1916:

| | | |
|---|---|---|
| Hemoglob. | | 120% |
| Reds | | 8,896,000 |
| Whites | | 24,500 |
| Red forms | | O. K. |
| Differential Whites | Poly. | 70% |
| | Lymp. | 0 |
| | Sm. Mono. | 7% |
| | L. Mono. | 7% |
| | Trans. | 1% |
| | Eosino. | 15% |

December 28, 1916:

| | | |
|---|---|---|
| Hemoglob. | | 120% |
| Reds | | 7,112,000 |
| Whites | | 14,600 |
| Red Forms | | O. K. |
| Differential Whites | Polys. | 78% |
| | Lymph. | 2% |
| | Sm. Mono. | 6% |
| | L. Mono. | 6% |
| | Trans. | 1% |
| | Eosino. | 7% |

Blood very thick, smears badly. Blood platelets Neg. Wassermann negative.

O. D. Nerve normal, retina also, only characteristic thing is the veins are almost black in color, maybe a trifle enlarged and slightly wavy. Arteries are normal, no indentations at crossings. At macula there is a glistening crystal, the underlying retina appears slightly oedematous as if early stage of Bright's retinitis.

O. S. There is an enormous increase in the number of vessels in the nerve head which are very wavy. There are hemorrhages everywhere, particularly nasal to nerve. In this area there is one white patch which appears as a double patch, this is one disc diameter nasal to nerve, there is another smaller white patch down and in. The temporal half of the eye-ground is less involved than the nasal, which is more or less disorganized by small droplets, exudations and the patches indicating where larger masses have been. In the fovea there seems to be an appearance indicating a droplet of blood. Where the veins and nerve can be seen the veins have the characteristic blackish appearance and both they and the arteries are very tortuous. Characteristic picture of cyanosis of the retina from polycythemia.

*DISCUSSION.*

Dr. Edward Jackson said his case of polycythemia, which he presented before the society one and one-half years ago, is doing well. This patient had a hemorrhage in one eye, but hemorrhages are rare.

Dr. Melville Black said his case had numerous hemorrhages.

Dr. Hill, who examined the blood in Dr. Black's case, told Dr. Black if the estimate were made from the blood stream and not from the capillaries the count would be lower, so this was done. The blood was taken from a vein and showed only seven million reds, while the blood from the capillaries showed eight million reds. Dr. Black's patient died from valvular heart disase. However, the eyes improved greatly just before death.

### Cataract Following Iridocyclitis.

Dr. G. L. Strader, of Cheyenne, presented a man who showed a cataract following an attack of iridocyclitis. This iridocyclitis was preceded by a very severe attack of tick fever last April. Immediately after the attack he could count fingers at 8 ft. Later a cataract developed.

Mr. S., age 41, first consulted Dr. Strader August 12, 1916.

History: Was taken sick May 20, 1916, with Rocky Mountain or "Tick" fever: In bed seven weeks. Large ulcers formed on posterior surfaces of arms and legs, also on buttocks and in mouth and throat. Twenty-first day, right eye became sore, marked pain, redness and photophobia. Attending physician made diagnosis of corneal ulcer. After three or four days could not see.

S. P. Eyeball moderately congested. Pupil margin adherent to lens except small portion below. Pupil filled with rather dense exudate. Tension normal; Vision=hand movements. Under heat, large dose salicylate and atropine, eye improvement rather marked. Week later, vision=fingers at four feet. No ulcer and no corneal opacity.

Returned, November 5th: Lens had become cataractous. Projection fairly good. Very little irritation. Sent home with instructions to use dionin and atropine.

January 11th, 1917: Eye has tendency to become irritable with moderate supraorbital pain. Tension, slightly minus. Projection only fair. Pupillary margin shows loss of pigment. Few days later after a course of salicylate, projection much better. Tension, about normal or slightly minus.

Diagnosis:—Iridocyclitis and cataract as sequelae of Rocky Mountain or Tick fever.

*DISCUSSION.*

Dr. J. A. Patterson asked if the medicinal treatment for the tick fever had anything to do with the cataract. Dr. Strader said he didn't know, but didn't think it had.

Dr. C. E. Walker said he believed the cataract was unquestionably secondary to the iridocyclitis. The cause of the iridocyclitis was of course more or less doubtful. He would remove the cataract and would do an iridectomy at the same time. He wouldn't wait for all the redness to disappear as the lens is swollen and tends to produce a prolonged congestion of the eye. He believes these cases do better if operated early rather than late, as the shrinking exudate will tend to lower the tension later on and then an operation will not be of as much benefit as it will if done soon.

Dr. M. Black thinks the vitreous is fluid and the iris atrophic. He wouldn't operate this case as there will be a large amount of vitreous lost and the eye will become atrophic. He believes the eye if let alone will eventually undergo atrophy subsequent to the iridocyclitis. He mentioned an eye like this which he first examined twenty-five years ago. The case returned one and one-half years ago complaining of the better eye. He was unable to use the good eye because of irritation and general symptoms of asthenopia. Dr. Black removed the blind eye and found a bone-like lens with extensive calcium deposits in the entire uvea. He presented this specimen at a meeting of this society last year for inspection of the members. He would remove the blind eye in Dr. Strader's case as it will greatly annoy the patient and he feels that an early enucleation will save the patient a great deal of unnecessary suffering and expense.

Dr. Walker said he has recently had such a case which was operated. The iritis was of rheumatic origin. The vision now is 20/30 after operation. He prefers to operate these cases.

Dr. Edward Jackson expressed the opinion that these were cases of endogenous uveitis. He would let the eye quiet down and be sure that it is free from redness. He has had several of these cases under observation for years. He would at least not operate until after the eye is free from all redness. He might wait for several years before operating unless there should be danger of the cataract becoming overripe. He believes it would be unwise to wait for overripening of the cataract.

Dr. John A. Donovan, of Butte, Montana, who was a guest of the society, said he thought the man should be congratulated upon being alive, as the disease is apt to be very fatal. He expressed the opinion that there may have been a vesicle on the cornea, such as we often see in smallpox and other eruptive diseases. He would let the eye alone and await developments. The patient should receive large doses of sodium salicylate or aspirin, as he has been on this treatment under Dr. Strader's care. Later, if necessary, he would do an iridectomy.

Dr. G. L. Strader said in closing the discussion that he had favored a conservative plan of treatment. The patient wanted the cataract removed. One week ago the projection was poor below, but today it is much better. The patient thinks that riding horseback on the range has affected his eye. This patient has been taking 20 gr. of sodium salicylate a day.

Boulder, Colorado. FRANK R. SPENCER, Secretary.

## CHICAGO OPHTHALMOLOGICAL SOCIETY.

PAUL GUILFORD, M. D., PRESIDENT.

FEBRUARY 21, 1917.

### Exhibition of a Case of Aniridia.

Dr. Emory Hill reported the case of a girl, aged nine years, whose vision had always been poor; the eyes had always oscillated and the pupils were very large. There seemed to be practically complete absence of the iris; the ciliary processes were not visible; the cornea, lens and vitreous were clear, the fundus appeared normal; there was myopia and astigmatism. Family history negative; no history of similar ocular defects obtainable. The nystagmoid movements resembled the searching movements of an almost blind eye more than nystagmus. At times, a vertical, and also at times a horizontal, motion is more noticeable than the others. She had glasses three years ago correcting 2.5 D. myopia and 3¼ astigmatism which now give 20/100 vision. Refraction showed a little more than 2½—in each eye and —4 cylinders in each eye with 21/70. The absence of corneal or lenticular opacities seemed to be somewhat unusual and the absence of any evidence of heredity was very unusual. It is supposed that absence of the iris is the particular eye defect which most often shows a history of some ocular defect in past generations. The theory generally accepted is that it is a defect of development and not the result of intrauterine inflammation.

Dr. Hill thought that the most satisfactory theory is the one advanced by Hess and supported by George Coats, namely that a mesodermal structure at the iris root prevents the normal ingrowth of the iris between cornea and lens. This may be looked upon as a hypertrophied or abnormally persisting mesoderm in the region of the pectinate ligament. All of the theories presuppose some interference with the advance of iris tissue from the periphery medialward into the anterior chamber.

*DISCUSSION.*

Dr. William A. Mann reported a similar case in which the best vision he could obtain was, for the right eye, —9 gave 20/200 and the left —5.5— gave 10/200. The patient was a drug clerk who was using —6 and said he could not read well with his glasses. In his case the lens had a number of striations and the fundus was indistinct. He gave him bifocals and with the addition of +3.50 for close work he could get a Jaeger 6. There was no heredity in his case.

Dr. Charles P. Small said that in his case, aside from the aniridia, which he considered congenital, both corneae were sclerotic. The patient was thirty years old; she had gone to school and could see perfectly until she was about fourteen. The first symptom was a cataract which developed in the right eye. This was needled, and the white spot appeared on the cornea shortly afterward, and increased until it covered the lower part of the cornea. In the left eye she has striae which are visible around the periphery of the lens. She could not expect much increase in vision because of the sclerosed condition of the corneae, although from 4/200 it had increased up to 11/200. There was marked lateral nystagmus. Family history in this case was negative.

Dr. Hill, in closing, said that one point which was worthy of mention was the frequent inflammatory reaction after any attempt at operation upon these cases. So far as he knew there were very few reports on the anatomical findings in these eyes. Generally there were the rudiments of the ciliary processes: there was some stump of the iris which had been adherent, and there had been reported a considerable overdevelopment of the pectinate ligament, the condition remaining in the adult eye as it was in the fetal eye.

### Specific and Tubercular Keratitis; Complete Detachment of the Retina.

Dr. Edward F. Garraghan said that the first case was a little girl 12 years of age. The vision of both eyes was very good until April, 1916. The right eye was reddened but not painful; vision 5/200. The cornea showed no ulceration but presented deep infiltration with a whitish mass. The iris reacted under atropin and was kept dilated. The teeth were sightly irregular. The Wassermann test gave a ++++ positive reaction. The patient had been placed on potassium iodid up to 30 drops, 3 times a day, and given mercurial rubs, and the infiltration had gradually cleared up until at present vision was 20/40 with no sign of infiltration at all.

The tubercular keratitis case was a patient aged 27 years, of good family, married 9 years, one child, a girl aged 8 years, who is delicate and has enlarged glands. The patient had had 4 operations in 18 months, 3 times on an old goiter. There was a slight swelling over the right eyelid. One month after the goiter operation last May the right eyeball became inflamed. The conjunctiva became injected and the cornea became involved. The sight gradually diminished and there was pain nearly all the time. Examination showed that the sclera was very much injected and painful to touch. There was deep corneal infiltration. The iris reacted sluggishly to atropin. The Wassermann test was negative, the von Pirquet positive. There was severe exacerbation of all the eye symptoms.

Tuberculin was given by injection, ½ mg. which after 8 to 10 days was increased to 1 mg. and after another 10 days to 1½ mg. The eye had gradually improved under the treatment.

Family history: Mother died two years ago, cause unknown; father died 10 years ago, had had considerable bronchial trouble. One brother died of tuberculosis. The patient's child has tuberculous glands. The diagnosis was made on the subjective findings. The patient was on iodide for a while but this made things worse. On the tuberculin she had improved right along. She can now see trees and when first seen saw only shadows.

*DISCUSSION.*

Dr. George F. Suker asked whether the cornea in the little girl with inherited syphilis presented any small islands of apparent infiltrates from which linear striations seem to arise and pass into the corneal stroma, or if corneal striations were the principal feature.

It had been his observation that such cases as presented the first named condition made a far better recovery as to visual acuity and yielded more readily to efficient treatment than those cases which came under the second group.

There is no doubt but that there are two types of syphilitic keratitis—one in which the spirochete can be found in the meshes of the cornea, and in such cases the keratitis is a direct expression of the activity of the spirochete; in the second type, the keratitis is the apparent result of the syphilitic toxin itself, the spirochete not being present in the cornea, but may be occasionally found in the circum-corneal area.

In the first type the corneal involvement is not as deep as in the second or striated type. In the former, the antispecific treatment is much more efficacious than in the second type, in which latter the general constitutional condition needs very much greater attention.

It seems as if the one type is a local expression in the cornea of the spirochete in an inherited syphilis, while in the other it is an apparent local condition resulting from the toxin of a generalized inherited syphilis in which the spirochetae are "fast"—much on the order of a "sympathetic theory," as it were.

As to the second case, tuberculous keratitis, he wanted to warn against the promiscuous use of the diagnostic tuberculin test, for in many in whom it was used in which a focal reaction followed, the eye went from bad to worse. Neither ought the ophthalmologist himself make the test without the collaboration of a competent internist. Small therapeutic doses at longer intervals are more effective and safer than rapidly increasing doses at comparatively short intervals. No dose, either therapeutic or diagnostic, ought ever to cause a focal ocular reaction, as more often than not greater harm is done than is gained by establishing the true diagnosis. A thorough physical and clinical examination, including X-ray chest pictures and the like, will often avoid the use of a confirmatory diagnostic injection.

For the therapeutic injections, begin with the smallest dose and be extremely cautious about increasing same; always be guided by the physical and clinical condition of the patient resulting from the injection whether to increase or decrease the therapeutic dose. In such cases, not only the local treatment is of value, but the general constitutional treatment of tuberculosis as such is of as much if not greater value.

Dr. Suker called attention to an admirable article on the subject by Dr. Hiram Woods, presented at the Memphis meeting (1917) of the American Academy of Ophthalmology and Oto-Laryngology which fully expresses his own views on the matter in concrete form and advised the members to avail themselves of this article.

Dr. Oscar Dodd said he had had a number of cases of tuberculosis of the cornea and felt like emphasizing the point made by Dr. Suker regarding too large doses or increasing them too rapidly. Even with the greatest care he had frequently seen focal reaction, and the condition made very much worse, sometimes taking 2 or 3 weeks to quiet the eye so that further treatment could be given. His method of treatment was to keep the dosage of the tuberculin down to a point where it did not cause any marked focal reaction, and in these cases he had seen beneficial results. He thought oculists did not pay sufficient attention to the handling of these cases in a general way. If the patient was not under good hygienic conditions no amount of treatment would be of avail. Good results may be obtained where the patient has good care with plenty of good food and fresh air and the other things generally used in tubercular cases. In cases where the hygienic conditions could not be controlled the condition was bound to grow worse in spite of anything that could be done. Dr. Dodd differed with Dr.

Suker as to the time between injections. He thought they should not be repeated too frequently but believed a small dose given once every week or 10 days, if the case was watched carefully, was all right.

Dr. Garraghan, in closing, said that the case of retinal detachment was interesting because of the great extent of the separation, having the appearance of plaited funnel. There were no premonitory symptoms and almost complete sudden blindness. From the standpoint of treatment little could be expected as the case was of two months standing when first seen. The case was that of a young man, age 22. Patient was seen for the first time on Jan. 3, 1917. Two months previous to this date he became aware of blindness in right eye in a rather peculiar way. Having a sensation of foreign body—left eye—he closed the lid and for the first time became aware of blindness in right eye. No history of injury; no pain in eye; transillumination shows absence of tumor; no tension; only light perception. There is complete detachment of retina.

### The Interrelation Between Eye, Ear, Nose and Throat.

Dr. Joseph Beck said he might have entitled the presentation better by calling it the discussion of exophthalmos and recession or protrusion of the eyeball, for that was what the cases represented. He presented the cases from the standpoint of the conditions about the head and neck, and particularly emphasized the factors which had presented themselves in these cases in relation to the production of exophthalmos and anophthalmos, and especially in reference to the treatment which could be said to bear relation to the laryngologist.

Case 1. Recession of the eyeball. This patient had been referred to Dr. Beck on account of severe pain on the side of the head and inability to breathe through the right nostril, and a marked recession of the right eye. The conditions at that time were not seen by Dr. Loeb, and Dr. Beck did not make the measurements by the instrument most of the men were familiar with, but by another. A marked difference was very apparent in the two eyes. There was also a paresis of the hypoglossus, and intense pain and paralysis of the right recurrent laryngeal nerve and a loss of sensation in the superior laryngeal nerve. There was slight atrophy of the shoulder muscle, although the movement was normal. There was a hard irregular tumor the size of a hen's egg on the side of the neck, growing quite rapidly, which developed after the patient came to him, and also a tumor back of the nose. He removed a piece of the tumor back of the nose which appeared to be a sarcoma. On the drum there was a linear port wine reddish mark which looked as if there had been a hemorrhage inside the drum. In the course of time there was rupture of the drum. The ears were treated, with the result that the tumor practically disappeared. There was now one on the other side which looked like glands. The eyeball had gradually come forward, the recurrent laryngeal nerve had begun to act so there was some action in the vocal cord, and there was some sensation.

The proposition was what was the cause of the recession of the eyeball? They had assumed that the cause was an irritation of the sympathetic, a destruction of the sympathetic and exophthalmos.

Case 2. This case was one of marked exophthalmos in a young lady of whom Dr. Beck showed photographs taken at different ages when she had no exophthalmos. The exophthalmos developed gradually with the growth of the tumor. The proposition was the disappearance of all her symptoms of exophthalmic goiter after the operation that is now in vogue, the removal of tonsils in connection with exophthalmic goiter. The young lady had not been under his care for this operation but she had two very beautiful scars, one for the purpose of ligating the thyroid vessels and the lower incision was made for the removal of the goiter. Subsequently to that her tonsils were removed. The patient came to him on account of nasal trouble. Operation was done on the thyroid, and after it the nose became completely blocked. The condition was a myxedematous structure, and there were other symptoms of myxedema. This patient had the usual effect on the pulse rate, the body weight, etc., and the nasal obstruction was very troublesome; this was probably a permanent condition. He had never seen a case where the desired results were obtained and still the eye remained the same.

Case 3. This woman, so far as the history shows, never had a tumor. She came with marked symptoms of exophthalmos, the goiter, the toxic symptoms, and complained about the eyes. When she first came the protrusion had been much more marked than at present. There never was a tumor and is none at present. Following ligation there was marked improvement in the general condition. It is known that ligations never cure a case and the thing now was to do something permanent. Dr.

Beck believed that the tonsil was a factor in the condition and he had removed the tonsils under local anesthesia without any bad effects whatever. There was not as much bleeding as in a normal individual, and the removal was followed by good results and a gain in weight. In due time toxic symptoms developed after the ligation, the improvement being of only short duration. The removal of the tonsils, however, was done in Rochester after the thyroidectomy. Dr. Beck had asked Dr. Crile about this last summer and he believed in the importance of the tonsils in connection with the thyroids and removed the tonsils after the thyroids.

*DISCUSSION.*

Dr. Clarence Loeb had not seen the first case until the eye was in the process of returning to its former condition. At the time he saw it there was a definite recession of the right eye which had since returned to a complete level with the other eye, as measured by the exophthalmometer. The young lady had a most pronounced exophthalmos, so much so that it was impossible to measure it with the instrument as the cornea extended beyond the last line. He had not seen this patient until the condition was well established.

He saw the other case shortly before she was operated on for the tonsils. Neither patient presented all the typical signs of exophthalmos. In both cases there was free movement of the eyelids and there was a protrusion of the eyeball. The staring appearance of the eyes was very noticeable.

As to the irritation and paralysis of the sympathetic, he had always been taught that the enophthalmos was due to a paralysis of the sympathetic and the exophthalmos due to the irritation. At first, he was inclined to scout the new theory, but it must be remembered that although the other symptoms very frequently improve rapidly after a removal of the gland, the exophthalmos often remains. So it may be that there was a paralysis. If irritation of the sympathetic caused the exophthalmos, removal of this irritation should, theoretically be followed by recession of the eyeball.

So far as the treatment of the exophthalmos was concerned this varied from performing Kronlein's operation to resecting the cervical sympathetic.

Dr. George F. Suker asked the members to examine these patients to help him verify a symptom he had investigated at the Cook County Hospital in a number of exophthalmic goiter cases and that was a deficient complementary fixation in lateral rotation of the eyes.

One patient was made to look to the extreme right, with head straight forward, and to fix a point for a second or two which was held three or four feet from the patient, and then the fixation point was rapidly swung into the median plane while the eyes were to follow it. During this rotation it was observed that the left eye properly followed the fixation point, while the right eye lagged behind and suddenly jumped into fixation with the left eye when the object reached the median plane, thus causing an apparent divergency for a moment.

Dr. Frank Brawley supported Dr. Beck's statement that the tonsillar infections played a great role in the thyroid disease. He thought those men who were seeing a good many tonsil cases very frequently saw cases where the acute thyroid irritation subsided rapidly following the removal of the tonsils, and this was particularly true where it had been determined by careful plate cultures that the streptococcus was present in the hemolytic or viridans form.

Dr. Clarence Loeb, in closing, stated that the fundus was normal in both cases. He thought the fact that winking was present prevented any irritation of the cornea as a result of the protrusion. He would certainly look for the Suker sign in all cases of exophthalmic goiter which he saw hereafter.

Dr. Harry S. Gradle asked how Dr. Beck accounted for the exophthalmos.

Dr. George F. Suker asked how Dr. Beck accounted for the fact that the pupils were always small in exophthalmic goiter.

Dr. Beck, in replying, said he believed there were certain fibers which were destroyed and others not. We knew that in the vestibular nerves there were two distinct paths for the superior canals and for the horizontal and vertical canals, and yet it was the same nerve. They also acted differently to stimulation and to the different degrees of stimulation. He thought it was possible that these fibers which had to do with the mechanism of the iris were not destroyed, whereas those which control the vessels which are behind the eyeball could be irritated or destroyed. Immediately after death the exophthalmos disappeared, and that may mean that other fibers stimulate the vaso-constrictors and each nerve in the sympathetic has those two components.

He thought that perhaps Dr. Suker was right, that when one cut both nerves the protrusion would go back but he had never seen it demonstrated.

**The Visual Requirements of Military Aviators.**

Dr. Charles P. Small said that the advent of the aeroplane in modern military equipment had made it necessary to modify to some extent the method of physical examination of applicants. It is of the utmost importance for the aviators to possess normal functions presiding over the maintenance of bodily equilibrium under a definite set of conditions. It was of equal importance to know the ocular conditions present, not only the visual acuity but the entire ocular apparatus.

Huss (Marine-Oberstabarzt) in his recommendation for the eye examinations of flyers includes the history, objective examinations, refraction, acuteness of vision, visual field taken roughly by the hand, and pupillary reaction. Unless the subheadings "Objective Examinations" were more comprehensive than would generally be included under that term, there were a number of very important omissions in this list for the routine examination.

Visual acuity of 20/20 in each eye is, of course, of prime necessity. In the British Army the standard for general service requires, without correction, vision of 6/24 in the better eye and 6/60 in the worse eye, which must be the left. In Germany combatants are required to have correctness in vision of at least 6/12 in one eye, while in the other the correct vision may be minimal, and in the Landsturm the second eye may even be blind. In the armies of Germany, Austria, France and Italy more than six D. of myopia are allowed, but because of the constant demand upon the eyes, from the time the aviator begins his ascent until he has made a landing, a visual acuity of less than 20/20 vision in each eye might be a serious handicap. Even with normal vision in his eyes, the aviator must have a normal binocular vision, as otherwise his estimation of distances, of the relation and location of places and objects would be valueless, and his own safety as well as that of his machine would be in serious jeopardy when attempting to make a landing. There should also be normal muscle balance as well as good abductive and adductive power.

The presence of nystagmus should disqualify an applicant. A cycloplegic should be used in all cases, not only for determining absolute refraction, but in order to see the peripheral parts of the fundus and detect any evidences of previously existing iritis or uveitis.

One of the most important features of eye examination seems to have been altogether ignored, namely, the examination of the color sense.

The speaker thought that there should be a re-examination of the eyes at least once a year, as sensitiveness of the retina, the endurance of the eye muscles, etc., could be determined only after practical trial.

The successful applicant for army aviation service should have: 1. 20/20 uncorrected vision in each eye. 2. Binocular vision. 3. Absence of nystagmus. 4. Normal muscle balance and competent ocular muscles. 5. Normal media and fundi. 6. Normal visual fields, by perimetric examination. 7. Normal color sense.

*DISCUSSION.*

Dr. Wesley Hamilton Peck said there was one feature in the paper of Dr. Small which he had thought of for some time, and that was in reference to supplementing the aviator's vision by the use of photography.

Dr. Clarence Loeb spoke of the requirements in the United States Service. He had been connected with the mobilization in Missouri and the standard for the line was 20/40 or better in the right eye and 20/50 in the left. No attempt was made to examine the fundus or test the refraction or the color sense.

Dr. Harry Gradle said that Dr. Stanton had shown him the requirements and he thought they included a high degree of visual acuity. Dr. Gradle considered the requirements were now too low and should be raised.

Dr. Small, in closing, said in answer to Dr. Gradle's question that at present the requirements were 20/20 in each eye. He thought our service should be maintained at a very high standard. There was no provision made for the examination of the color sense. The muscles should show not only normal balance but should have good adductive and abductive power. The labyrinth was tested simply to see if there was normal reaction. Rejections were made if there was not normal reaction.

MAJOR H. WORTHINGTON, M. D.,
Secretary-Treasurer.

22 East Washington Street.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 25 E. Washington, St., Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Dr. Paul J. Pontius has been appointed visiting ophthalmologist to the Philadelphia General Hospital.

A symposium on ophthalmology of war was conducted by the ophthalmological society of Paris, in April.

Dr. Geo. J. Fiebiger of Waterloo, Wis., recently returned from a three months' stay in the South.

St. Mary's Hospital, East St. Louis, has opened a dispensary for the care of diseases of the eye, ear, nose and throat.

Dr. Samuel G. Higgins of Milwaukee has moved his office to 1312 Wells Building, having terminated his office association with Dr. Nelson M. Black.

Dr. Luther C. Peter has been appointed professor of ophthalmology at Temple University, Philadelphia, to fill the vacancy caused by the death of Dr. Wendell Reber.

Dr. Burton Chance of Philadelphia was the guest of the Chicago Ophthalmological Society at its April meeting. He presented a paper on "The Ocular Complications of Pregnancy."

Miss E. M. Maxwell, daughter of the late Dr. Patrick W. Maxwell of Dublin, is a member of the medical profession, and is at present engaged in ophthalmic work at Malta.

Twenty-five hundred dollars has been given to the British Ophthalmic Hospital at Jerusalem by Major Ernest B. Walton, and $1,000 to the Royal London Ophthalmic Hospital, by Mr. John Sloughgrove.

Dr. Gavin Paterson Tennent, who died in 1913, left $125,000 to the University of Glasgow for the establishment of a department of ophthalmology and for the foundation of a chair of ophthalmology in the University. The salary of the new professor has been fixed at $2,500 a year.

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The next meeting of the British Ophthalmological Society will be held in London, May 3-5. There will be discussions on the employment of the blind, and on contusions of the visual apparatus. The Bowman lecture will be given by M. T. Berry on the subject of color-vision.

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In the latest number received of *Le Jornal des Soldats Blessés aux Yeux*, the director, M. Brieux, expresses in behalf of the people of France their profound appreciation of the work of Americans, and particularly the efforts of Mr. and Mrs. George Kessler, in establishing the "Permanent Blind Relief War Fund."

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Stanford University Medical School has issued its fourth annual announcement of the Summer Graduate Medical Course. The session will extend for six weeks, from July 9 to August 17. The course in Clinical Ophthalmology consists of a clinical lecture of one hour, followed by an hour spent in practical work under the instructor's supervision, five afternoons a week. The class is limited to ten.

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The annual meeting of Alienists and Neurologists will be held Monday, July 9th, to Thursday, July 12th, 1917, in the Red Room, Hotel La Salle, Chicago, under the auspices of the Chicago Medical Society. Dr. George A. Zeller will act as chairman. The program will be mailed June 28th, with abstract of each paper. Contributors to the program are solicited. This is a society without a membership fee.

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The School of Massage for blind soldiers, which was founded in France in 1915, has already accomplished creditable results. In the course of instruction, which continues for eighteen months, is included the study of anatomy and physiology, as well as the work in practical massage. Of the thirty-three pupils, sixteen have passed their final examinations, and been formally approved by a jury composed of physicians and surgeons.

The following bequests to British institutions have been announced: $2,000 to the Royal Westminster Ophthalmic Hospital, from the trustees of the Zunz bequest.

Something over $1,000,000 to the blind asylums and ophthalmic institutions in the city of London and the counties of London and Surrey, from Mr. Leopold Salomons.

$35,000 to the Glasgow Ophthalmic Institution and $5,000 to the Glasgow Eye Infirmary, from Miss Mary Kelvinside.

$1,500 to the Portsmouth Eye and Ear Infirmary from Dr. John T. Leon.

$2,500 to the British Ophthalmic Hospital at Jerusalem from Major Ernest B. Walton.

$1,000 to the Royal London Ophthalmic Hospital, from Mr. John Sloughgrove.

## OBITUARY.

M. R. Pritchard, Westfield, Pa.; Feb. 23; age 64.

Alex. F. Koontz, Irvington, N. Y.; Mar. 5.

Chas. D. Goodrich, Elkhart, Ind.; Mar. 14; age 60.

Dr. Masselon, former collaborator with de Wecker, died in February.

Dr. Richard Liebreich, Paris; age 87. He was the author of a famous ophthalmological atlas, published in 1863, which even today ranks as a classic.

Dr. Walter Hamilton Hylton Jessop, president of the Ophthalmological Society of the United Kingdom, and managing director of the *British Journal of Ophthalmology*.

Patrick W. Maxwell, one of the best known ophthalmic surgeons in Ireland, died at his residence in Dublin, on March 10; age 61.

David Braden Kyle, the well known laryngologist of Philadelphia; professor of laryngology at the Jefferson Medical College, died from pneumonia on Oct. 23, aged 53 years.

Dr. Vincenz Czerny, professor of surgery at the University of Heidelberg and director of the Institut für experimentelle Krebsforschung, died October 3, aged 74 years. He was one of the most notable figures in medical practice in Heidelberg.

The death is announced of Miguel Santa Cruz, director of the National Ophthalmic Institute in Madrid.

# CHICAGO EYE CLINICS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 A.M. | Richard S. Pattillo (P.-G.)<br>G. W. Mahoney (Poli.)<br>R. B. Stephenson (P.-G.)<br>Carl Wagner (E.E.N.T.) | *Geo. F. Suker (P.-G.)<br>C. H. Francis (Poli.)<br>A. Duncan (P.-G.)<br>A. G. Wippern (E.E.N.T.) | W. F. Coleman (P.-G.)<br>S. M. Hager (Poli.)<br>H. N. Lyon (P.-G.)<br>Carl Wagner (E.E.N.T.) | G. W. Mahoney (Poli.)<br>Rich'd S. Pattillo (P.-G.)<br>R. B. Stephenson (P.-G.)<br>A. G. Wippern (E.E.N.T.) | C. H. Francis (Poli.)<br>R. B. Stephenson (P.-G.)<br>J. A. Cavanaugh (E. E. N. T.) | S. M. Hager (Poli.)<br>C. W. Hawley (P.-G.)<br>H. J. Morlan (P.-G.)<br>A. G. Wippern (E.E.N.T.) |
| 10 A.M. | Brown Pusey (N.W.U.)<br>Geo. T. Jordan (N.W.U.)<br>Robert Blue (N.W.U)<br>Every day, 10-12 A. M.<br>Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) |
| 1 P.M. | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>E. V. L. Brown (County)<br>and<br>Geo. F. Suker (County)<br>Daily, 2:30 P. M.<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffmann (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>Oliver Tydings (E. E. N. T.) | W. Allen Barr (Inf.)<br>*Frank Allport (St. Luke's)<br>*Frank Brawley (St. Luke's)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>*PaulGuilford (St.Luke's)<br>*Casey Wood (St.Luke's)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>H. W. Woodruff (Inf.)<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>Oliver Tydings (E. E. N. T.) |
| 3 P.M. | *Wm. E. Gamble (U. of I.)<br>Wm. H. Wilder (Rush)<br>H. S. Gradle Daily 3-5 (E. M. D.) | R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.)<br>*Wm. E. Gamble (U. of I.) | Wm. H. Wilder (Rush)<br>R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.) | Geo. F. Suker (P.-G.) 2-5<br>H. Cuthbertson<br>A. Duncan |
| 4 P.M. | W. F. Coleman (P.-G.)<br>H. N. Lyon (P.-G.) 2-5 | C. W. Hawley (P.-G.) 2-5<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | J. B. Loring (U. of I.)<br>E. K. Findlay (U. of I.)<br>G. F. Suker (P.-G.) 2-5<br>H. Cuthbertson (P.-G.) | C. W. Hawley (P.-G.)<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | W. F. Coleman (P.-G.) 2-5<br>H. N. Lyon (P.-G.) | |

*Special operative eye clinic.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 1844 W. Harrison Street.

E. M. D.: Emanuel Mandel Dispensary, 1012 Maxwell St.

County: Cook County Hospital, W. Harrison and Honore Streets.

Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.

M. H.: Mercy Hospital.

Poli.: Chicago Policlinic and Hospital, 221 W. Chicago Avenue.

P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.

N. W. U.: Northwestern University, 2431 Dearborn Street.

Rush: Rush Medical College, W. Harrison and Wood Streets.

St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

U. of I.: College of Medicine, University of Illinois, Congress and Lincoln Streets.

THE
OPHTHALMIC RECORD
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# A CASE OF SUSPECTED TUMOR OF THE PITUITARY BODY.

BY
HOWARD F. HANSELL, M. D.
PHILADELPHIA.

December 29, 1916, E. W., aged 17, applied for examination of his eyes. He complained of nearly constant frontal headache and stated that the sight of the left eye was not good and that it had never been as acute as that of the right eye. He has never worn glasses. R. V. = 6/6 partly. L. V. = 6/40 excentrically. On the temporal half of the left field all objects were obscured when not entirely lost. The pupil of the left eye was dilated under all conditions of light one mm. larger than the right. The hemianopsic pupillary reaction could not be positively proved yet the response to a bright, suddenly exposed minute light, was less prompt and less excursive by the nasal half than by the temporal half of the iris. Determination of limits of the left field by means of a small electric lamp brought out a marked contrast in the perception of the light and its exact location between the nasal and temporal halves. In the latter the light could be dimly perceived and imperfectly located. In the former it was everywhere distinct and its position accurately designated. The dividing line seemed to be exactly vertical excluding the point of fixation. The right field as measured by the lamp was not limited. A more accurate estimation of the fields by the perimeter showed concentric limitation in the right and a contracted hemianopsic field in the left. (Fig. 1.) In the blind portion of the field of each eye well-illuminated particles were dimly seen.

The patient was entirely deaf in the left ear. The deafness was due, according to his mother's statement, to scarlet fever which he had when five or six years of age. Dr. Keelor, of the ear department of the Jefferson Medical College Hospital, stated that examination of the ear showed external normal conditions. When questioned as to the diagnosis and its bearing on the deafness he replied in writing: "It is definitely shown that this case cannot be explained by one lesion because we cannot visualize any one portion of the brain that would account for the dilatation of the pupils and destruction of the temporal field of the left eye, at the same time showing a marked degree of internal deafness of the left side."

The test by revolving the patient in a chair, or by douching the ears with hot or cold water or by applying the galvanic current to the ear, so well and practically described by Dr. J. H. Jones (*Jour. Amer. Med. Asso.*, March 17, 1917), was applied with only physiological reactions. Hence there could be no pathological interference with the connection between the ear and the brain.

A radiograph taken by Dr. W. F. Manges revealed "interference by pressure on one or more of the large blood channels, probably the sinus in closest relation to the base of the brain in the region of the sella turcica or longitudinal sinus about the level of the coronal sutures. Diagnosis: Possibly brain tumor."

The patient was sent to Dr. F. X. Dercum in consultation, who at first believed the symptoms pointed to hysteria, but later was inclined to the opinion that they were due to tumor of the pituitary body. Further examination by Dr. Dercum and Dr. Gilpin in the Dispensary for Nervous Diseases of the Jefferson Hospital strengthened the latter opinion. Under date of March 26, 1917, Dr. Gilpin writes: "The examination of E. W. from the neurolgic standpoint shows nothing abnormal. He has no disturbance of gait, station, reflexes, motion or sensation, and he presents no evidence whatever of hysteria. We rather suspect he has some lesion of his pituitary gland but can give no positive evidence to sustain such a diagnosis."

The eye symptoms and the X-ray report point to the diagnosis of tumor of the pituitary gland and the neurologic report supports the diagnosis by exclusion. The charts of the visual fields show concentric contraction of the right and complete left hemianopsia. The fovea was not included in the blind portion of the field. Charts of the fields were taken at intervals of a few weeks by Dr. J. S. Fritch, and the last one showed practically the same outlines as the first. (Fig. 2.)

The only medication has been potassium iodide in ten-grain doses, to which he soon showed intolerance, and pituitrin, and thyroid extract in small doses. Physically he has improved. He has now no headache or vomiting and were it not for the partial loss of vision on the left side he would consider himself entirely well.

The glandular extracts, so favorably reported by de Schweinitz in three similar cases (*Penna. Med. Jour.,* April, 1912), and by Elsberg & Krug (*Arch. of Ophth.,* March, 1917), will be given in larger doses than he took heretofore. There is much uncertainty in the dosage of thyroid extracts. Some writers advise three grains daily, others fifteen grains daily. As pointed out by Dr. Dercum the proper dose for each patient must be learned empirically.

The symptoms presented by our patient are too few to permit of a positive diagnosis, yet they are of significance in pointing to a tumor, cyst, or hypertrophy of the pituitary body. The clinical symptoms—disturbed nutrition, drowsiness, headache, gradual loss of vision through advancing optic nerve atrophy, irritability, weakness, bitemporal or homonymous hemianopsia or other field defects are not to be expected in each case.

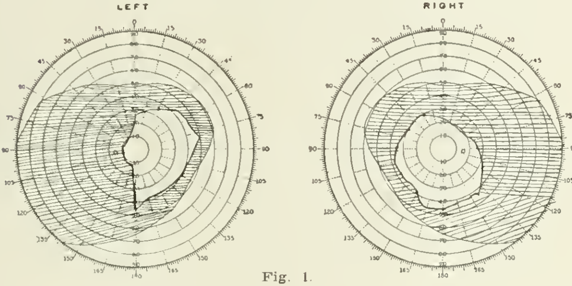

Fig. 1.

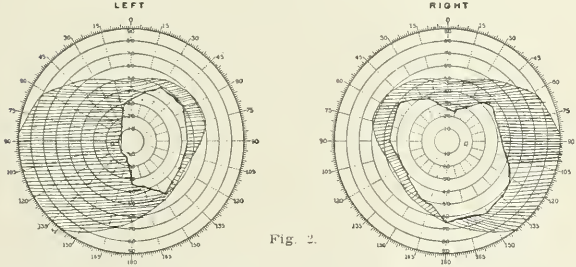

Fig. 2.

The fields, practically unchanged in an interval of three months, show a well-defined left temporal hemianopsia without scotomata. Of the right a moderate concentric contraction also without scotomata. The patient presents no indications of acromegaly. This indicates that the changes in the pituitary body, if any are present, are not the same as those commonly found in acromegaly, namely: adenomatous changes in the gland itself. Hence we are strengthened in our opinion that we are dealing with a tumor of the gland or a part of the gland. Thus far in the history signs of bodily involvement are altogether lacking. The nature of the lesion is at present conjectural. Hemorrhages in the chiasm may be excluded for, while the left monocular temporal blindness was noticed by the patient first in its completeness, the subsequent history, together with the youth of the patient, would tend to exclude pressure by an accumulation of blood. The picture of normal eyegrounds persisting through three months is not inconsistent with the conception of a small tumor, possibly cyst, of the pituitary body which has almost completely destroyed the function of the anterior left part of the chiasm and has invaded, by pressure or inflammation, the right optic nerve.

While cases have been reported in which during the entire course of the disease the eyegrounds remained normal, most observers have noticed a gradual whitening of the nerve heads as the affection advances or from the beginning choked disc or optic neuritis. The ophthalmoscopic findings as well as the character of the field defects depend upon the size, position and nature of the tumor in any individual case.

Wilbrand & Saenger in the sixth volume of their great work have described in great detail the microscopic changes in the chiasm and given clinical cases of every variety of chiasm disease.

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# OPTIC NEURITIS (UNILATERAL) RESULTING FROM A TONSILLAR INFECTION—REPORT OF A CASE.

BY

GEORGE FRANCIS SUKER, M. D.
CHICAGO, ILL.

Optic neuritis due to a tonsillar infection is not a common clinical finding, though tonsillar infections are indeed numerous and are the basis for many other systemic or local lesions.

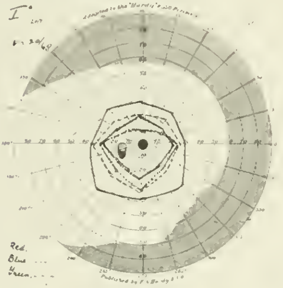
In the case here reported, the etiology was made by exclusion, insofar that every possible cause for the neuritis was excluded. Wassermann, spinal puncture, tuberculin tests were made; blood, teeth, intestines, stomach, sinuses, etc.: X-ray of head and sinuses—not any of them revealed a cause for the neuritis.

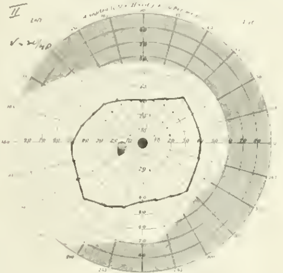
Miss D., aet. 20 yrs., March 18th, 1917, noticed a blurring in the left eye which became more intense within a few days. No pain or ocular injection of any kind. Pupillary reactions normal on March 21st.

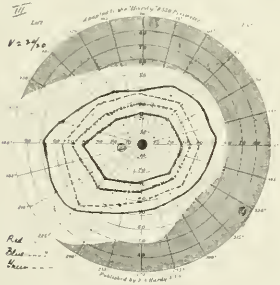
O. D. = 20/60.

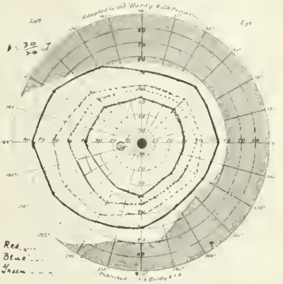
O. S. = 20/60 not improved by lenses.

The field of vision for form and color as per chart for left eye. Notice the color constriction in the first field for the left eye and the marked form construction. The blind spot is a trifle enlarged downward.









Here then we have a case of unilateral optic neuritis which, upon a scrutinizing clinical basis, must be ascribed to a focal infection from the tonsils. The field of vision is characteristic of a moderate peri-neuritis. It is this type of neuritis—peri-neuritis—which is the more common as a result of focal infections located in the sinuses or elsewhere and the tonsil in this particular case was the undoubted source of the unilateral optic neuritis.

The left disc was markedly neuritic. Edges blurred and physiological cup filled. There were no retinal hemorrhages, but the veins were rather distended; macular area much blurred and "hyperaemic"; balance.of fundus negative. Right eye was normal in every detail.

Upon examination of the tonsils they were found to be markedly hypertrophied and full of crypts containing much debris. Enucleation of same under general anaesthesia (Dr. J. C. Beck). Within 36 hours hours after the excision of the tonsils, vision rose to 20/40 and within 72 hours was 20/20. The field of vision was normal, as can be seen by the fourth chart, and has remained so since. Patient seen four weeks later and conditions found normal.

## DEVIATION UPWARD OF THE ONE EYE, DUE TO OVERACTION OF THE INFERIOR OBLIQUE, CONSECUTIVE TO CONGENITAL PARESIS (OR INSUFFICIENCY) OF THE SUPERIOR RECTUS OF THE OTHER EYE

ILLUSTRATED BY MOVING PICTURES

FRANK C. TODD, M. D.
MINNEAPOLIS, MINN.

Case 1.—On July 13, 1916, I was consulted by Bertha K., aged 13, who gave the following history: Deviation of the eyes was first noticed when patient was 6 weeks old. It was then not constant, but appeared when she looked in certain directions. It became increasingly noticeable. She was fitted with glasses when 5 years of age, and wore them three years without correction of the deviation.

In answer to inquiry, patient stated that she was not bothered with double vision, except when her vision was directed toward a near object (when convergence was required). But the mother stated that she was continually running into things, particularly when they were on the right side, and that the family had observed that the head always assumed a certain position, viz.: a tilting to the left and a turning toward the left. The parents had, however, not associated the head position with the eye defect.

*Examination.*

| Versions | Up | Down | Out | In | Vision |
|---|---|---|---|---|---|
| Right ..... | 60 | 30 | 50 | 65 | R.—6/9—6/6 + 2.00 |
| Left ....... | 50 | 45 | 40 | 65 | L.—6/5—6/5 + 0.50 ( ) + 0.50 ax. 90 |

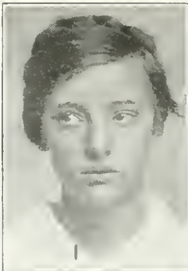
It will be observed on looking at the moving picture that when the patient was asked to fix the eyes on the camera and turn the head toward the left, the eyes were parallel; then, as she slowly moved the head toward the right, while the left eye continued to fix, the right eye turned upward: and, as related to the left eye, it deviated somewhat outward.

We found that the deviation upward amounted to about 25 degrees, and outward to a maximum of about 15 degrees. Then, if the patient was asked, while the head was in this position, to fix with the right eye, the left eye would drop downward and outward to a corresponding degree. The patient has partial suppression of the image, so that tests could not be made with the Maddox rod, and had to be made with the cover test.

*Diagnosis.* This is a case of congenital insufficiency (paresis or muscle anomaly) of the left superior rectus, and secondary deviation upward of the right eye, caused by compensatory overaction of the inferior oblique. Tilting of the head produced parallelism and consequently the head almost continually assumed this position.

*Operation.* On July 21, a complete myotomy of the right inferior oblique, according to the method described by Duane, was performed under general anesthesia. On August 2, measurements showed some improvement, but still considerable deviation. On August 3, under local anesthesia, the conjunctiva was re-opened under the right eye, and an exploration made to determine to a certainty whether or not there were any remaining attachments. It was found that the inferior oblique had been completely severed. The superior rectus of the left eye (the paretic or insufficient muscle) was advanced by a tucking operation. The results from this operation proved satisfactory, and parallelism was secured, while the tilting of the head was completely relieved. The patient was allowed to go home on August 15, promising to return again in a month. I have been unable to get the patient to return, but have received a letter from her dated November 27, in which she says, "I do not see double, and my eyes are straight."

This condition was called attention to by Dr. Duane in a paper published by him in the *Annals of Ophthalmology*, October, 1904, and again in an article reporting a case in the *Archives of Ophthalmology* in 1916, in which Dr. Duane reports having performed tenotomy of the inferior oblique for this condition with relief in several instances, and states that



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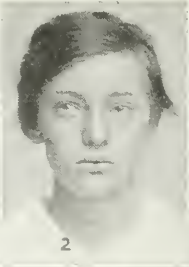

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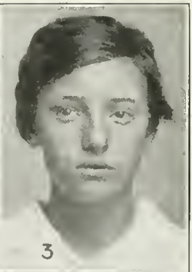

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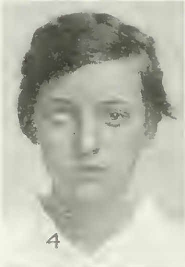

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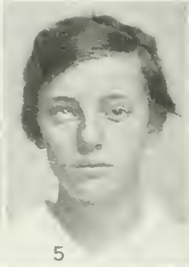

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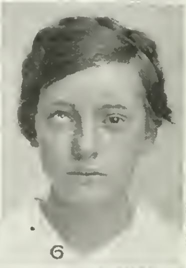

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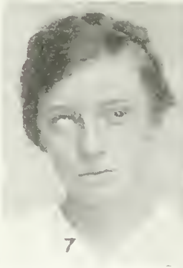

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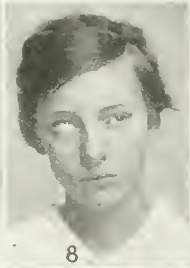

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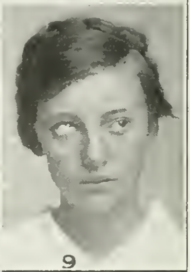

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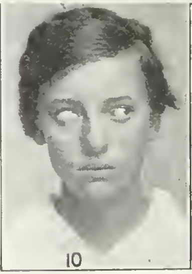
These illustrations show the continually increasing deformity of the right eye, caused by overaction of the inferior oblique as the patient looks from the extreme right to the extreme left.

Note the gradual upturning of the right eye, and that while there is an apparent convergent strabismus, in reality as related to the other eye it is divergent.



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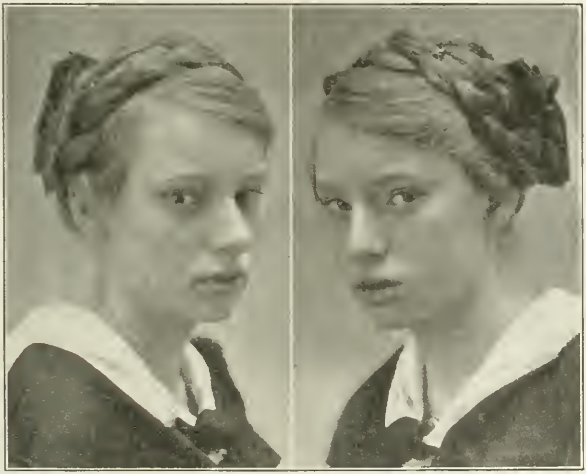
The pictures shown in the illustrations in this article show the patient looking in various directions, all the way from the extreme right to the extreme left, while the moving pictures show the patient turning her head in various directions, but the effect is the same.

he had seen about forty cases, and therein he describes his method of doing the operation.*

I did not get the relief in my case until I had advanced the paretic muscle, and believe that in the next case I shall attempt the advancement of the paretic muscle before cutting the inferior oblique.

In answer to my letter to Dr. Duane giving a description of this case, he writes that his associate, Dr. White, has operated on seven of such cases, and Dr. Knapp on one: that he himself has operated on eight or nine, doing a tenotomy of the inferior oblique with success in all but one case, and suggests the possibility that his one case and mine were alike, and explainable on the basis of some anomaly of insertion. In my operation for advancement, I noted no anomalous attachment of the tendon to the globe.



After Operations
Extreme Rotation
To the Right

After Operations
Extreme Rotation
To the Left

I present this case because it is evident that such cases are not infrequent. They are, however, evidently often unrecognized. The moving picture will make this so evident that one cannot fail to diagnose the condition.

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*1. Dr. Posey, at a later date, presented a paper before the American Ophthalmological Society, on "Tenotomy of the Inferior Oblique."

The characteristic symptom which may be first evident to the friends is the tilting of the head, although in some cases a secondary lateral (either divergent or convergent) strabismus may result. To quote from Dr. Duane: "When head-tilting fails to give relief, and partial or complete suppression has not occurred, the patient often involuntarily adopts the expedient of diverging or converging the eyes, until the double images are so far apart as to be no longer confusing. In this way, at the age of 2 or 3, or perhaps later, a squint develops. Of the cases of acquired convergent and divergent strabismus that I have observed, quite a fair proportion have developed in this way, the acquired lateral squint being secondary to the congenital vertical deviation."

In making the examination, it may be found that the patient may fix with either eye, but in the case of an insufficiency of the superior rectus of the left eye, and a consecutive overaction of the right inferior oblique, when the object looked at is carried so far to the left as to be hidden from the right eye by the nose, and at the same time is carried somewhat up—the left eye, which now has to fix, would tend to lag down, and the right eye would tend to shoot obliquely up.

"A final proof that the upshoot of the right rotation was due to spasm of the inferior oblique and not to any peculiarity in the insertion of the internus, would be afforded by the fact that when the eyes converged strongly, the right eye, although turned strongly in, does not shoot up, but does so at once when *both* eyes are turned to the left."—(Duane.)

If the case is one of paresis of the right inferior rectus with consecutive overaction of the left inferior oblique, the effect would of course be the same, but the various faulty movements described would be transferred to the other eye.

In case binocular vision is present, tests may be made with the red glass and the tangent screen of Duane.

These cases should be operated on early, thus obviating the disfiguring wry-neck or strabismus, which may otherwise result.

## *DISCUSSION.*

Dr. Wendell Reber, Philadelphia: I think our thanks are due Dr. Todd for taking this unusual method of showing this, which is the only way it could have been shown. The frequency of these cases is greater than generally supposed. Of this I feel sure from the number of cases reported by Duane and Posey, and I have seen eight cases—seven I am perfectly sure about. On one I did a tenotomy of the inferior oblique and advanced the superior rectus on the good eye with perfect results. As a rule, the head is tilted. and I think such patients should be operated on comparatively early. The interesting thing is that they fix with the perfect eye, and that is what produces the tremendous upward rotation when the eye is turned. We seem to lose sight of the fact that when the eyes are rolled up both eyes are stimulated. To be sure, the inferior obliques also enter into the matter, and sometimes you get a pure upward rotation, as in the picture I show here. These cases are divergent strabismus and are due to a congenital defect. Where you have to deal with these cases I think the ophthalmologist will be safe in doing the advancement on the superior rectus.

Dr. John Green, Jr., St. Louis: I recently operated on a boy of 6 years, who had a slight internal squint associated with upward deviation of the left eye, with compensatory head tilting. The deformity was by no means as conspicuous as in Dr. Todd's case. Tenotomy of the inferior oblique brought the visual axes nearly to parallelism and entirely abolished the head tilting. My impression is that in low degrees of this anomaly simple tenotomy of the inferior oblique will be all sufficient.

Dr. Frank Todd, Minneapolis (closing discussion): I am obliged to Dr. Reber for calling attention to these points. The reason I brought this before the society is because I felt the condition, while relatively infrequent, is seen rather frequently and remains unrecognized. We are likely to consider these as cases of lateral strabismus and do the wrong operation. The diagnosis is very simple if we keep in mind the movements shown in this moving picture and described in this paper.

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# PRIMARY PROGRESSIVE ATROPHY OF THE IRIS.

BY

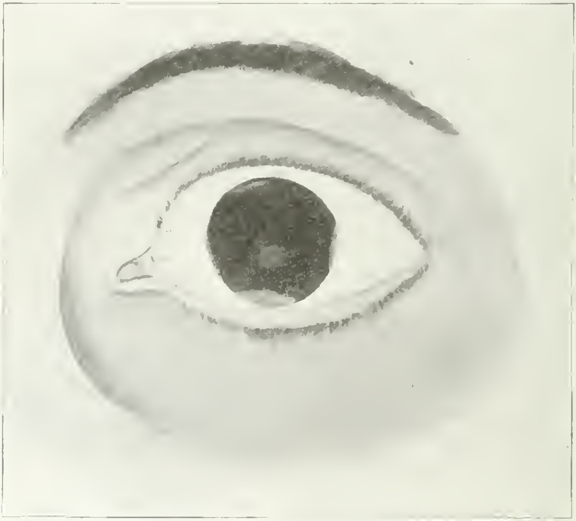
LAURA A. LANE, A. B., M. D.

FARIBAULT, MINN.

Primary progressive atrophy of the iris with almost complete loss of all the iris stroma is a comparatively rare condition. Atrophy of a portion of the iris due to a specific, to a tubercular lesion, to an injury or an increased intraocular tension is not uncommon. After careful search of the literature only twelve cases appear to have been reported.

The case here reported has been under observation since October, 1915. The history is as follows: The patient is a well-developed young woman of Bohemian descent, single, age twenty years. Her parents are living and well. One brother and two sisters are living and well. A brother died of tuberculosis in infancy and two sisters have died of the same disease. Five other sisters died in infancy; the patient does not know the cause of death.

There is no other family history of importance. The patient's general health has been good. She has had a few of the minor diseases of childhood. Menstruation regular. When she was thirteen years of age a facial acne vulgaris indurata developed. This has been of a very persistent type. She has had skilled treatment for this acne. She has never been entirely free from it, at times it improves; the face is deeply scarred, and numerous hard indurated masses are now present.



Primary Progressive Atrophy of the Iris.

There is no history of injury. The patient is not of a nervous temperament. Two years ago she noticed the colored portion (iris) of the left eye had a small black hole in the margin of the pupil which extended downward into the colored part. Shortly afterward another hole appeared which extended toward the temporal side of the eye. At times the eye became inflamed. This would last for several weeks. There was little pain at this time, and never any secretion.

Gradually other portions of the iris began to retract and disappear, until the pupil had the appearance of a rectangle. The only iris left was four small bands. The eye became more painful and the vessels injected. About one year before consulting me the patient noticed the eyeball was some smaller than the right eye. Vision was poor, at times being worse than at other times.

During the past six months a film had gradually appeared on the cornea. The patient has been nauseated lately and during the past two weeks the pain has interfered with sleep.

**Status Praesens.**

A distinct glaucomatous cloudiness of the cornea exists. The ball is considerably smaller than the other one. The ciliary vessels are deeply injected. Vision O. D. 6/30; O. S. fingers at six inches. Plus 2.00 cyl. ax. 90 gives 6/7 in O. D. Tension in O. D. is 22, in the O. S. 56. Blood pressure 115. Slight red reflex is present but fundus cannot be made out. Good transillumination of each ball is present. The iris is almost completely absorbed. A small almost invisible band exists above and to the nasal side also, the iris tissue at the temporal and lower quadrants is only slightly more abundant. None of the bands of iris tissue join each other at any point.

The right iris apparently normal. Physical examination: a tuberculin and a Wassermann test are each negative. The acne seems to be the only condition at all suggestive of a possible focus of infection.

The patient was given prescriptions for dionin and physostigmine salicylate. Treatment was also instituted for the acne. In ten days the tension greatly improved, the cloudiness of the cornea was better and the vision better in each eye. O. D. being 6/20 and O. S. 1/60. There was no pain or nausea. Patient continued on this treatment except the dionin for some months.

Late in January, 1916, the tension suddenly rose and the eye became painful. A trephining operation was done, a three-millimeter instrument being used. There was considerable difficulty in dissecting the flap and bleeding was troublesome. A clean disc was removed. The sclera was somewhat thicker than usual. No iris appeared in the trephine hole, nor was it possible to draw it up into the opening with forceps. A stab opening was made and the aqueous squirted about four inches above the patient's face so great was the intraocular pressure. The cornea at once became soft. An attempt was made to draw up the iris, but this was only partially successful as the iris was firmly adherent.

The eye healed rapidly, the cornea losing its haziness so the fundus could be indistinctly seen in a week following the operation. Vision at the end of the week, when the patient left the hospital, was 5/60. A large bleb remained over the trephine hole and the filtration was good. In a month it was noticed that the ball was larger, the cornea was practically clear and no injection of the vessels was present. Tension was 20.

The patient was not seen again until November, 1916. The eye was clear, only a pin point haze over the center of the cornea remaining. The bleb over the trephine hole was much smaller and the hole was not easily made out, however there was still some filtration. Vision was 3/60. The fundus could be fairly well made out. Some cupping was present. The tension 28. The patient occasionally used eserine or dionin if the eye did not feel good. This always gave relief. Absorption of the iris was still going on; less was visible than on her last visit.

In December she reported that the eye was still clear, and the difference in the size of the two was not now apparent. Only a trace of iris remained above, and a faint line below and to the temporal side. The accompanying drawing shows how little was left.

In February, 1917, the patient reported with the right eye troubling for the previous two weeks. The pupil was partially dilated and somewhat sluggish. Slight conjunctival injection was present. The left eye was clear. Patient reports a bleb on the right cornea about four days previously. However, this could not be seen at the time of her visit. Vision in O. D. is 6/30, with correction 6/10 minus. O. S. 3/60. Patient is dizzy, nauseated, and has severe headache. No cupping of disc The media are not perfectly clear. Tension is 30.

Physostigmine was used in each eye and this gave relief quickly. Improvement in vision and in symptoms being rapid.

The acne has not responded to treatment. Vaccines have been used. At times it is better. Various tests have not revealed anything to show the cause of the disappearance of the iris.

In the reports of de Schweinitz, Harms, Wood, Zentmayer, and in this patient, increased tension has been found. No one yet has been able to show a definite primary cause for essential primary atrophy of the iris. Men and women are each subject to the condition. The period of twenty to forty has furnished the most of the cases. Previous history of injury was found in at least four of the cases, but undoubtably could not be called a possible causal factor of great importance. Nervous tissue generation may play a factor, as in Dupuy-Dutemps report of atrophy of the iris in tabes dorsalis.

Is the condition brought about by a sclerosis of the iris vessels? It seems quite probable, but is there not a primary cause for the sclerosis? Latent tuberculosis was undoubtedly present in several of the patients of those reporting atrophy of the iris, and must almost certainly exist in this patient from the family history.

Auto-toxemia could be a factor. The acne which this patient has had for years is probably of this origin, as diet and eliminative treatment seem to produce a slight improvement.

It is hoped that some one may see this condition early when it is first beginning and make an exhaustive study. Many cases of partial atrophy of the iris or arrested condition of loss of iris tissue have been reported, but only a few go on to complete absorption of all the iris stroma and loss of vision. All the cases reported show more or less loss of vision. The question arises, will the other eye become involved in a similar process? As yet no report has shown this to have happened.

What was the meaning of the sudden rise of tension in the good eye without any distinct fundus findings of a glaucoma? Increased tension has been present in nearly all the patients reported. It appears that there may be some disturbance of the bodily metabolism which exerts marked action on the eye tissue, causing the increase of tension.

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## THE PROPOSED MERGER OF AMERICAN OPHTHALMOLOGIC JOURNALS.

Following the step taken in England, the suggestion of a similar one in France, and a partial step recently taken in Italy, it is now proposed to secure a representative American ophthalmic journal, through the combination of American ophthalmic journals now published. To justify this merger it is necessary that there shall be an adequate subscription list. The subscription price is to be fifteen dollars per annum, provided that if there are fifteen hundred subscribers the price shall be twelve dollars per annum. and if there are over two thousand subscribers it shall be ten dollars per annum.

Among the advantages of such a journal is the obvious one, that in it will be brought together under one arrangement, without duplication. what is valuable in all of them.

This journal will be published monthly. It will be planned and brought out by those who have had valuable experience in the conduct of ophthalmic periodicals in this country, associated with representatives of the national ophthalmological associations. It will be controlled and conducted by a stock company composed of ophthalmologists; and all surplus income, over a low interest on capital invested, will be applied to the improvement of the journal.

# REPORTS OF SOCIETIES

## COLORADO OPHTHALMOLOGICAL SOCIETY.

WM. C. BANE, M. D., PRESIDING.

FEBRUARY 17, 1917.

### Neuritic Atrophy Due to Sinus Disease.

Dr. E. E. McKeown presented Mrs. G. M. H. Two months ago V. O. S. began to fail, at which time she was having a great deal of pain, first in eyes, then in top of head and back, blurring, etc. Shortly afterwards she noticed failure of V. O. D. also, and now thinks that vision is somewhat improved with left. No increase in tension. Blood pressure 102. Advised Wassermann test. Dr. Mitchell reported this slightly positive.

Letter from Dr. Pothinsje as follows: . Mrs. G. M. H. first came to me January 30, 1915, with a history of hemorrhage for about two months. Her physical examination was as follows: Heart negative, lungs negative, abdomen negative, reflexes negative, uterus size of two months pregnancy. She had appearance of pernicious anemia. Blood exam.: Hemoglobin 25%, white blood corpuscles 4,000, red corpuscles 2,500,000, so the diagnosis was secondary anemia of chlorotic type, resulting from the uterine disease.

After treatment and rest the uterus was removed and found to be fibroid. She completely recovered. She came in yesterday complaining of headaches, nervousness, and decreasing vision. Vision about 1/10 minus O. U. Her physical examination and urine negative. I wish to call your attention to a thickening of the skull, anterior portion median line, and to her eye condition. She is wearing a pair of glasses fitted by a specialist in Miami, Florida, five years ago. Right eye is plus 1. with +2. scale; left eye is plus 1.25 with plus 2.50 scale.

February 15th, 1917. Vision equals fingers at 2 feet O. U.; no change in fundi. Blood pressure 102. Tension of each eye is 26 to 28. Teeth are bad. Advised that an X-ray be taken.

*DISCUSSION.*

Dr. W. A. Sedwick thinks the teeth should be examined by the X-ray in Dr. McKeown's case.

Dr. Wm. H. Crisp expressed the opinion that the X-ray should include the accessory sinuses, in order to be more thorough.

Dr. D. H. Coover expressed the opinion that the vessels were a little more tortuous than normal, but otherwise he found very little evidence of pathology in the fundi.

Dr. H. R. Stilwill asked if this patient had been hysterical. Dr. McKeown said she has not been.

Dr. E. E. McKeown stated that the blood Wassermann was positive, and the spinal fluid Wassermann was negative.

Dr. Melville Black stated the fields should have been taken early in this case and the blind spot measured very carefully at that time. He thinks this is a post-neuritic atrophy, probably due to accessory sinus disease.

Dr. F. R. Spencer expressed the opinion that the fields should have been taken early in this case and the blind spot measured, too, as Dr. Black suggested. He also quoted from Verhoeff that many of these cases may not show any cause for the disease, even when examined very thoroughly by competent specialists in other fields of medicine. The most exhaustive examination will not always prove of benefit to the patient.

Dr. Wm. H. Crisp asked Dr. McKeown regarding the projectile vomiting, frequency, etc. Dr. McKeown said she had projectile vomiting a few times only.

Dr. Wm. C. Bane advised X-rays for the accessory sinuses and teeth.

Dr. McKeown said she had suffered from very severe pain at times.

Dr. Crisp thought the cupping slightly increased, but physiological, nevertheless.

Dr. Geo. A. Moleen, a neurologist, had examined the case, at the suggestion of Dr. McKeown, but his examination was practically negative.

Dr. McKeown reported that the sphenoidal sinuses were clouded by X-ray examinations, in the male patient which he presented at his office when the Colorado Ophthalmological Society met there in December. He stated that Dr. Robert Levy had operated upon the sphenoidal sinuses with very decided improvement in the patient's vision.

**Eye Injury.**

Dr. Melville Black presented Mr. F. Occupation: Railroad engineer. Age, 37. Left eye injured December 16, 1916, by a flying piece of glass from the bursting of an oil gauge on his engine.

I saw him about five hours later. The cornea was split from nasal limbus to its center, iris was entangled in wound. Lens appeared clear and the eye looked good. The entangled iris was pulled out and excised, leaving a good coloboma under the wound with no remaining adhesions. Atropin instilled and the eye closed. It was not opened for two days when, to my surprise, a picture of extensive deep infection was presented. The wound was clean, the anterior chamber reformed and half full of yellow pus. I at once injected, subconjunctivally, 30 c.mm. 1-1,500 sol. cyanide of mercury, which caused a most violent reaction, but stopped the progress of the infection at once. Resolution was slow, but a few days ago I thought the eyeball was saved, notwithstanding the iris was adherent to the lens, the coloboma filled with exudate, and the lens partly opaque. The tension was slightly elevated, but the eyeball was not tender. Yesterday morning he came in to tell me the eye had watered all night and was quite uncomfortable. I found the anterior chamber filled with blood and the tension 60 mm. Hg. He was directed to use hot fomentations 10 minutes out of every two hours.

I saw him this morning and found the blood in anterior chamber unchanged in appearance. Tension 50 mm. Hg. He has light perception.

*DISCUSSION.*

Dr. W. H. Crisp thinks the hyphaema, in this case of Dr. Black's, does not necessarily influence the prognosis.

Dr. D. H. Coover, however, thinks he hasn't seen persistent hemorrhage in the anterior chamber except in cases of injury to the ciliary body. He believes this eye will improve slowly and he wouldn't enucleate.

Dr. W. H. Crisp, in the discussion of Dr. Black's case, reported a case of his own in which an engineer had tapped a steam pipe while making his rounds. One of the steam pipes exploded when he struck it a blow with a hammer, blowing many pieces of iron rust into the cornea, ocular conjunctiva, lids, etc. Some of these were rather deeply imbedded in the sclera. When he first saw the patient he removed all the pieces of iron rust, etc., from the cornea, but, considering the length of time it consumed to take care of him, he didn't remove all the pieces from the sclera of each eye. The fundi were not examined because of the irritation, photophobia, lachrymation, etc.

Dr. Crisp saw this case only in consultation. A few days later, the right eye became very uncomfortable. It became entirely blind in a short time, although this eye was being cared for by a general practitioner, who does some eye work. The X-rays, however, were negative. He was unable to obtain any fundus reflex in O. D. By transillumination he found a mass in the vitreous attached to the lower part of the ciliary body. He thinks this mass was, in all probability, due to a massive hemorrhage into the vitreous. Dr. Crisp added that the vision improved in his case as the exudate shrank.

Dr. Wm. C. Bane asked Dr. Black if glass could be in the eye. Dr. Black replied that the X-ray examination was negative, although we all realize how difficult it is to get a shadow of glass. He stated the eye had been entirely quiet for one month prior to the appearance of the blood in the anterior chamber.

Dr. F. R. Spencer mentioned a dwarf, whose eye was injured by the exploding of a glass water gauge ten or eleven years ago. X-rays failed to show any glass in this eye, but he felt that, in all probability, a piece of glass had entered the vitreous chamber, from the appearance of the wound, etc. The eye improved rapidly, following the excision of the prolapsed iris, and the wound closed. The eye was free from redness and had reasonably good vision when this patient was last seen, but he felt the eye would very likely be lost subsequently from contraction of the exudate in the vitreous, and atrophy of the eyeball. The patient has disappeared from Boulder and he does not know the outcome of the case.

**Uveitis.**

Dr. Melville Black presented a second case, Mr. McG., age 42. Right eye injured ten years ago, which left a corneal scar with damaged vision. This eye gave no trouble until January 11th, when it became inflamed. He saw his physician who instituted treatment. The eye was very painful and soon became almost blind. I saw him on February 12th. The tension was 60 mm. Hg. with Gradle's Tonometer. Eyeball very red. Cornea hazy with very active Descemetitis, aqueous murky, pupil margins adherent to lens everywhere.

Diagnosis: Uveitis. Treatment: Subconjunctival injection of 25 Min. 1 to 2500 solution cyanide of mercury containing 1/3 gr. novocain and 1/100 gr. atropin. The reaction was very severe with resulting dilatation of pupil, clearing of aqueous and cornea, and reduction of tension. This man denies all venereal infections and opportunity for infection. He has a good set of teeth, except for some pyorrhea. No other pyogenic foci can be found. General health is good. He is now on atropin locally, and 5 gr. K. I., t. i. d. internally.

*DISCUSSION*:

Dr. D. H. Coover thinks an optical iridectomy is desirable in this case, and, if it were his case, he would perform one. He thinks the vision will be improved. He also believes this will hasten the maturity of the cataract. He would do a cataract operation later, after a preliminary iridectomy, and after seeing what effect the iridectomy has upon the eye.

**Dacryocystitis.**

Dr. Melville Black presented a third case, male, age 49. He has had double dacryocystitis for many years. He was under my care in 1908, for an abscess of the cornea of right eye from the infection of a small wound of cornea by a foreign body. A central leucoma formed, similar to that now seen on left cornea. Last March he sustained some slight injury to cornea of left eye, and a corneal abscess resulted. He was treated by another oculist, with the outcome of a central leucoma adherens about 6 mm. in diameter. The lens is partially opaque, and there is a dark pigmented opacity in nasal side of lens which lies under the iris. It looked like a foreign body, but X-ray plates show that it is not.

Last summer an iridectomy was performed, by an oculist, upon his right eye, after the leucoma formed on left, but it was a failure and left the eye in such an irritable condition that I enucleated it about two months ago.

I have been endeavoring to get the lachrymal passage of left eye in shape for an iridectomy on that eye. I first performed a dacryocystorhinostomy through a skin incision into the sac. But the upper end of the sac must have been injured by my manipulations, for, in a short time, drainage stopped, and it was found that small probes could no longer be passed into the sac. I then opened up the sac again and destroyed it with trichloracetic acid. Therefore, at the present time, the lacrymal passage may be excluded as a cause for infection if an iridectomy is performed.

*DISCUSSION.*

Dr. D. H. Coover asked if the vitreous were hazy in this third patient of Dr. Black's. He mentioned an article in the January number of the British Journal of Ophthalmology, concerning the administration of 1 to 2% potassium chloride, subconjunctivally, for clearing up vitreous opacities.

Dr. F. R. Spencer asked if there was a possibility of tuberculosis of the ciliary body in this case, as Dr. Black had spoken of the lardaceous deposits upon Descemet's membrane. Dr. Black replied in the negative.

### Exophoria Due to Muscle Operations.

Dr. H. R. Stilwill presented J. W. C., age 26; occupation, cigar clerk; good habits. One year ago he came to Colorado for his health, which is now fairly good. Four years ago had an operation for int. squint of R. E. The int. rectus of the L. E. was cut at this time. Three months later R. E. was straightened by cutting the int. rectus of the same eye. Later the ex. rectus of the L. E. was cut and tucked. Six months later, another oculist cut the int. rectus of each eye, and later tucked the int. rectus of the right eye. (Four operations altogether.)

He first had an esophoria of 20 degrees, and, after these operations, he has an exophoria with crossed diplopia. At the present time he has 12 degrees of exophoria, and drawing and nystagmus are worse. V. O. D. 4/15 partly; V. O. S. 4/10. Glasses do not improve this. When his vision is not fixed, or when relaxed, he has a lateral nystagmus. Headaches and fullness over occiput. When trying to suddenly fix for distant vision, vertigo results, and this is his chief complaint. Diplopia at times. Patient wants R. E. removed or blinded. R. E. has been under atropia for the past month with some slight relief of symptoms.

*DISCUSSION.*

Dr. M. Black said this case illustrated the error of muscle operations in neurotic individuals.

Dr. W. H. Crisp stated that this patient should be very carefully and properly refracted and then the oculist should insist upon his wearing the proper correction. If he will persevere with his lenses, he will obtain lasting results.

Dr. H. R. Stilwill said he would have to be very firm with this man or let him seek advice elsewhere, as he is too unwilling to wear the lenses simply because he is uncomfortable with them on.

Dr. E. H. Marbourg referred to a suit in which the physician should have used this method. Instead, he had removed an eye because the patient wanted it done, and the judge held him liable for doing something which he knew shouldn't have been done and which he shouldn't have consented to do simply because the patient wanted it done. He stated that, in Dr. Stilwill's case, the patient's request should not be granted.

Dr. Black said this may be a case of alternating squint with good vision in each eye, and that a muscle operation couldn't do any particular good.

Dr. W. C. Bane asked if this patient has any central defect? Dr. Stilwill answered in the negative.

Dr. Stilwill said this patient is very ambitious and anxious to advance in the world, but, because of his eye trouble, he feels that he can't. Dr. Stilwill believes this man is very liable to commit suicide and, therefore, needs a great deal of advice and careful observation.

Dr. M. Black said he should have weaker lenses, and these should be gradually increased from time to time until he is able to wear his full correction; that he should be made comfortable, otherwise he will not co-operate with any oculist.

Dr. C. A. Ringle said he shouldn't wear a full correction, but should lead an outdoor life and have good food so he will improve. Indoor life is not best for such patients.

### Tumor of Optic Nerve.

Dr. Wm. C. Bane presented Master L. B., age 9, shown at the November meeting of this society, with a marked proptosis of the left eyeball, it being pushed forward, downward, and inward. At that time the anterior surface of the left eye protruded 5 mm. more than the right, and the cornea was lower by 5½ mm. The X-ray showed no bony tumor, and a tentative diagnosis of tumor of the optic nerve was made, and operated upon December 5th, 1916.

Removal of any of the bony wall of the orbit proved to be unnecessary, and elevation of the conjunctiva and severing of the external rectus muscle soon brought into view a cyst about the size of a hazel-nut. It was attached firmly to the eyeball near the nerve, and to the outer side of the nerve near the eyeball. In trying to shell the cyst out, it was ruptured, and clear straw-colored fluid escaped.

The section of the nerve with the cyst wall attached was then removed close to the eyeball, and turned over to Dr. W. C. Finnoff for pathological examination. He will report his findings. I endeavored to remove all of the cyst wall.

Since operation, the eye has retracted considerably and the muscles have regained some of their power. There has been a good deal of swelling on the temporal side of the eyeball, which has neither increased nor diminished in size during the last two months. It may be some reaccumulation of cystic fluid, but no investigation has been made.

*DISCUSSION.*

Dr. Bane stated that one or two ulcers developed near the outer limbus, from exposure of the cornea following the operation. These healed promptly, after the eye was bandaged, but had some tendency to recur. However, he has been able to get these to heal without any serious injury to the cornea.

Dr. Wm. C. Finnoff gave the following report of the examination: The optic nerve measured 8 mm. long, and there was a cyst attached to the nerve, lined with several layers of neuroendothelium. This extended from the anterior to the posterior end of the nerve. The nerve was very atrophic. He thinks the endothelium must have been at least six or seven cells thick. A section of the specimen was sent to Dr. F. H. Verhoeff, of Boston, and to Dr. Marcus Feingold of New Orleans. Dr. Verhoeff said the tumor extends farther back than this specimen shows. The diagnosis is cystic degeneration of an endothelioma.

Dr. M. Black said the circulation in the retina was very good, in spite of cutting the nerve off close to the globe. He was unable to explain this, but called the attention of the members to the good circulation. Dr. Black said his pressure test failed to exsanguinate the retinal vessels.

Dr. W. H. Crisp said, before hearing Dr. Finnoff's report, he thought this was a case of early tumor of the optic nerve. He thinks, however, this may be part of another tumor farther back along the optic track.

Dr. W. C. Finnoff said Dr. Verhoeff had looked over his tumors of the optic nerve, when he received this specimen, and said there was a decided thickening of the neural endothelium in cases of tumors of the optic nerve.

Dr. W. H. Crisp mentioned the fact that Dr. Casey A. Wood removed the tumor, without removing the eye, in his case of tumor of the optic nerve.

Dr. W. C. Bane asked if the swollen conjunctiva at the outer canthus means anything. Dr. Black answered in the negative. He said this is an edema, pure and simple, following the section of the external rectus muscle in order to turn the eyeball forward and remove the tumor of the optic nerve.

Dr. E. M. Marbourg mentioned a case seen with a colleague, who had been struck at the limbus with a piece of coal. The case was shown before this society several years ago. A piece of coal was removed, but there was quite a little pigment at the limbus. This pigmentation aroused suspicion and a section was removed and examined by a pathologist. However, he reported an absence of melanosarcoma. This eye was enucleated later in Denver. Two years after the enucleation, the patient developed abdominal pain in the liver region, followed by death. The cause of death was metastatic sarcoma of liver secondary to the melanosarcoma of the eye. He also mentioned the fact that many laborers handle a great deal of cyanide of sodium and potassium in hardening steel. Blindness may occur and he thinks we should watch the laborers who have occasion to handle a great deal of iron for this.

Dr. W. C. Bane reported a case, which he presented several years ago before this society, of melanotic sarcoma of the eyeball. The eye was enucleated, but death occurred two years later. Doubtless the death was due to metastatic sarcoma, but he could not obtain a post and he was unable to prove this.

Dr. W. C. Finnoff said any tumor, which gives evidence of being a sarcoma, should be removed very early, and, if the eyeball is involved, the eye should be enucleated very thoroughly, as sarcomata metastasize very early, usually. Most of these are melanosarcomata, although a leukosarcoma is rare. Melanin will be present in some parts of the tumor, if we search for it carefully, although some of the sections may lead us to believe that it is a leukosarcoma, because of the absence of pigment.

Dr. F. R. Spencer called attention to the fact that, while some of these cases live a long time, after a diagnosis of melanosarcoma is made, it is the exception for them to live very many years. He referred to a case which Dr. Hans Lauber used to show in the eye clinic in Vienna, which he saw five and one-half years ago. At that time this patient, a lady, had a melanotic sarcoma of the optic nerve head of one eye for some twelve or fifteen years with no evidence of metastasis. However, such prolonged cases do not demonstrate the wisdom of waiting. This woman had been advised to have the eye enucleated, but had refused all operative interference. He stated that, personally, he would prefer enucleation, if his own eye were involved with a melanotic sarcoma.

Dr. D. H. Coover said he had in mind two cases in which he had enucleated an eye for a sarcoma of the choroid. One of these he operated on twenty-five years ago, and another fifteen years ago. Both are now living and well, as he has seen both of these patients recently. In both of these cases the pathologist reported a melanosarcoma.

**Foreign Body.**

Dr. Wm. C. Bane presented Mr. C. S., age 22. September 9, 1916, while hammering on a vise with a hammer, patient felt something strike the left eye. Not certain whether it hit the lid or the eyeball. No pain, no sensation of a foreign body in the eye, but merely a slight discoloration of the conjunctiva on the temporal side. Vision was good with each eye. Ophthalmoscopic and sideroscopic examinations were negative at this time, and it was hard to believe there was any foreign body in the injured eye. An X-ray examination was urged in order to be on the safe side, and this showed a very small foreign body 11 mm. back of, 7 mm. below, and 5 mm. to the temporal side of the center of the cornea. Another examination with the sideroscope was then weakly, but definitely positive, showing that the foreign body was a fragment of steel.

September 22, 1916, the foreign body was removed with the hand electro-magnet through a scleral incision. Recovery was uneventful, and vision has remained better than normal.

**Tuberculosis of Retinal Vessels.**

Dr. Wm. C. Bane presented a third case, Mr. S. B., age 22. Came to the office, January 25th, complaining of poor vision in the right eye, which had existed for about three days. First noticed it on arising in the morning, when he found something was blurring the vision of the eye. He thinks he had a similar attack about two months previously, which lasted only about an hour.

Other history: Says he has nosebleed quite often. Has an attack of tonsillitis about once a year, and has just recovered from an attack. No history of tuberculosis.

Examination revealed several hemorrhages into the vitreous, one a small dark spot centrally located, a central semitransparent cloud about three discs in diameter, a flat cloud hemorrhage in the temporal field, and a similar one in the nasal field. V. +O. D. 5/15—, O. S. 5/5—.

Treatment: 10 gtts, K. I. t. i. d., increasing doses. Course: February 1st, the vision had improved to O. D. 5/6+

and the vitreous was much clearer. Very little headache. February 3d, vision again hazy. O. D. 5/20. Complains of some headache. February 9th, O. D. 5/15. Was able to see the disc by indirect method, but indistinctly. Bleeding spots on the right side of the septum touched up with silver nitrate. Ordered 10 grs. of calcium lactate t. i. d. before meals, and reduced the K. I. to 10 gtts. t. i. d. after meals. February 16th, vision entirely blurred for letters. Asked for von Pirquet and Tuberculin tests.

*DISCUSSION.*

Dr. W. C. Bane said he usually gives K. I. to cases of vitreous hemorrhage.

Dr. M. Black asked if he had had hemorrhages before, to which Dr. Bane answered in the negative. He stated that tuberculin tests and the Wassermann are being made. The patient has had recurring attacks of tonsillitis about once each year, but he had one attack just preceding the eye disease.

Dr. H. R. Stilwill says he has cured a vitreous hemorrhage completely with potassium iodide.

Dr. D. H. Coover mentioned a case of Parinaud's conjunctivitis shown several months ago before this society. A portion of the conjunctiva was removed, for pathological examination by Dr. Finnoff, and it was found to be tuberculosis of the conjunctiva.

Dr. W. C. Finnoff said the first section didn't show tuberculosis, but a larger section did enable him to demonstrate tubercle bacilli in the tissue.

Dr. W. H. Crisp complimented Dr. Finnoff upon finding any tubercle bacilli in the tissue, as this is not always an easy matter.

Dr. W. A. Sedwick reported that the X-ray had confirmed the right-sided tumor of the pons, in the brain tumor case which he had presented before the January meeting of this society.

Dr. M. Black thinks K. I. won't help cases of vitreous hemorrhage, as they clear up even without potassium iodide.

Dr. W. H. Crisp said K. I. may produce hemorrhage into the vitreous of tuberculous patients and it may be best not to give it to them. Dr. Bane expressed the same opinion.

Drs. Black and Coover referred to a young lady with recurrent vitreous hemorrhage. This woman was formerly a patient of Dr. Black's.

### Paralysis of External Rectus.

Dr. W. H. Crisp reported a case of abducens paralysis in a man of thirty-seven years. Ten days before coming for examination, a convivial evening with excessive drinking had been followed next morning by a spell of vomiting with sudden pain in the left side of the head, and subsequent violent headaches and general lassitude, which had been diagnosed by a general physician as an attack of grippe and treated with quinine. A week after the attack of vomiting, the patient began to see double. The case was apparently a straightforward one of paralysis of the left abducens, the fundus and vision being normal, and the only other symptom an aching of the back and left side of the neck. There was a history of a primary sore four years previously, and of treatment with one dose of salvarsan and subsequent inunctions. The Wassermann test had been negative on several occasions. During the two weeks since the first visit, the patient had been under mercurial injections intramuscularly, and there had probably been a slight improvement in the motility of the left eye. The patient's muscular reflexes and co-ordination were normal.

*DISCUSSION.*

Dr. E. M. Marbourg asked if the luetin test had been made, and Dr. Crisp replied that it hadn't.

Dr. M. Black said this patient may have a neuritis or beginning tabes from lues. He thinks this case should be seen by a neurologist. The external rectus paralysis is often the first symptom of a multiple sclerosis.

Dr. W. H. Crisp said there hadn't been any improvement in the paralysis in two weeks.

Dr. D. H. Coover advocates the inunction form of treatment. Dr. Sedwick does too.

Frank R. Spencer, Secretary.

Boulder, Colorado.

## COLORADO OPHTHALMOLOGICAL SOCIETY.

A. C. MAGRUDER, M. D., PRESIDING.

Meeting of March 24th, 1917.

### Paralysis of the External Rectus.

Dr. Edward Jackson presented a man, age 51, who had been struck low on the forehead, by a fragment from a bursting wheel, one year before. There was a fracture of the bridge and septum of the nose, with extravasation of blood in the region of the lids, followed by slight exophthalmos of the right eye. He had fever and was semiconscious for two or three weeks. There was rigidity of the neck and progressive emaciation with signs of a low grade meningitis.

He now shows a convergence of the right eye of 60 centrads with inability to bring it to within 15 or 20 degrees of the median line. The optic disks are clear, but pale and slightly cupped. The retinal vessels are rather small, especially in the right eye. Otherwise the fundus is normal. Vision is 1 in each eye. Diplopia requires the constant covering of the right eye. The use of slips from the superior and inferior tendons to attach to the tendon of the external rectus was suggested; although most cases heretofore subjected to this operation had no capacity for annoying diplopia, and therefore the operation was probably more successful in such cases than in patients with a capacity for diplopia.

*DISCUSSION.*

Dr. E. R. Neeper said he wouldn't expect results after any operation upon this patient. The eye may be technically straight and the operator may have a technically correct operation, but the patient would have diplopia. He wouldn't operate. He would compel the use of the right eye by covering the left from time to time or by some other means.

Dr. H. M. Thompson said he wouldn't operate this case. In two or his own cases he gave a high plus sphere of 8 or 10 diopters to be worn before the paralyzed eye in order that the patient might be comfortable and avoid diplopia without having the paralyzed eye bandaged. This made both patients very comfortable. One of these cases recovered completely the use of the paralyzed muscle, although he had a negative blood Wassermann. The etiology was never determined as numerous tests, laboratory examinations, etc., failed to reveal the cause.

Dr. Edward Jackson said he believed the only operation which would be of any avail in this case is to utilize part of the tendon of the superior and inferior rectus, but this is best in congenital cases at least. He had had this patient wear a patch over the right eye to avoid diplopia. At other times he had him wear it over the left eye in order that he might use his right eye part of the time. If he operates this case he will at least watch it for three or four months before performing any operation.

**Glaucoma Simplex.**

Dr. E. T. Boyd presented Mr. W. H. W., age 68. Occupation—machinist's helper with work at the nut machine. This patient was first examined April 1st, 1916, at which time the left eye was blind. The tension was greatly elevated and the disc markedly excavated. The right eye showed a clear cornea with shallow anterior chamber, and the pupil moderately dilated and inactive. The tension was 43 mm., the fields concentrically contracted, with a central vision of 20/50.

Eserine was immediately prescribed. The patient used this for one week and returned. This time the fields were somewhat enlarged, and the tension was reduced to 35 mm. Central vision had improved to 20/30. He then explained to the patient the absolute necessity of using the medicine regularly and continuing its use even though he should get an idea that it was doing him no good. He explained to the patient that his eye disease was serious and that he might have to use eserine for years.

The patient called again in a week with little or no change in his condition. The former advice, concerning the use of eserine, etc., was repeated and an endeavor made to impress upon the patient the seriousness of his condition.

The patient disappeared and was not seen again until the present month. Recently the fields were so much reduced that he possessed nothing but central vision, which was 20/70. The tension was 45 mm. The patient said that he had not been using the medicine for some months as he did not believe it had done him any good. Eserine was again prescribed and the patient was seen today with a tension of 33 mm.

Dr. Boyd asked if it would be advisable to operate this case with the hope of conserving the little vision that he now has, and, if so, should trephining or iridectomy be performed. He believed that a successful trephining in this case would cause him to retain some vision longer than he would otherwise do but that blindness will be the final result. He furthermore stated this patient is of such a perverse nature that, should the eye be operated and he go blind later, he would immediately attribute his blindness to the fact of his having been operated upon.

### Glaucoma Simplex in a Myope With Unusually Low Blood Pressure.

Dr. H. M. Thompson presented Mr. S., age 63. Occupation—sheepman. First came for change of glasses February

19, 1914. Had worn a —1.50 sphere O. U. for 15 years; snow blind on two occasions; otherwise his eyes had never given him any disturbance. General health of patient was usually excellent save occasional "sore throats and rheumatism."

Examination: Partial ptosis of left lid (congenital), conjunctivitis O. U. corneae clear; A. C. normal depth, irides good color; pupils 3 mm., react normally. Oph. ex.: Discs and retina "fluffy," having an appearance of a mild neuritis. This finding caused me to institute a more careful examination. Vessels normal in calibre. Tension by palpation normal. Fields for form and color apparently normal.

Lab. Exam.: Urine. blood count and Wassermann negative. Physical examination revealed chronic cardiac dilatation, pulse 80; blood pressure—systolic 95, diastolic 70.

Refraction: O. D. —1.00 sph. ○ —0.75 cyl. ax. 105. O. S. —1.00 sph. ○ —.75 cyl. ax. 75. = V. O. U. 20/20. General treatment advised.

December 4, 1914, patient returned complaining of light causing pain. Vision, with correction, O. D. 20/30; O. S. 20/20. Ophthalmoscope showed whitening and slight cupping of right disc; left reddened as if slight neuritis. Tension: Gradle-Schiotz O. D. 28 mm., O. S. 25 mm. Fields: O. U. slight contraction for form and color. No change in the refraction. Treatment: (local) eserine, pilocarpin and dionin to be used daily. Noviol glasses for light irritation.

Patient returned again in May and December, 1916, with no apparent change in vision. Fields more contracted in right eye and cupping more marked in right and evident in left. May, 1916, V. O. D. 20/40, O. S. 20/30. Tonometer: O. D. 35 mm., O. S. 28 mm. Blood pressure: systolic 108, diastolic 85.

Patient was not seen again until February 26, 1917. In the meantime he saw an old friend, a physician, who told him he did not have any such thing as glaucoma, and there was no eye trouble present. I believe this led him to neglect his treatment. Vision: O. D. light perception, O. S. 20/40 partly with glasses. Tension: O. D. 28, O. S. 20. Field in O. S. decreased to nasal side. General physical examination: myocardial degeneration. B. P.—S. 96, D. 70. Microscopic examination of tonsils pus-diplococci and short chain-streptococci. Tonsils removed under local anesthesia.

March 22, 1917, patient returned with evidence of an acute exacerbation in right eye.

**Discussion of the Two Cases of Glaucoma Simplex.**

Dr. Edward Jackson says he has watched a case of glaucoma simplex for ten years. He has this patient use pilocarpin. The tension has never been above 30 mm. The arterial tension ranges from 110 to 120. The patient's age is over 90. The patient stopped pilocarpin on one occasion of his own free will and accord and lost vision. He has never lost vision while using the pilocarpin, however. If Dr. Jackson operated, he would trephine and do an iridectomy at the same time, in both Dr. Boyd's case and Dr. Thompson's.

Dr. J. M. Shields mentioned a case with infection after a trephining operation. He isn't in favor of the operation, because he has seen this one bad result.

Dr. W. H. Crisp thinks he sees a tendency to criticise the trephining operation, and to do an iridectomy first. If necessary, a trephining operation may be done later.

Dr. Wm. C. Bane mentioned a case he saw in 1901, in which he did an iridectomy. Infection followed and the eye had to be enucleated. Later glaucoma developed in the other eye, and he didn't operate. He has this patient use pilocarpin faithfully, as this holds the vision where it was when glaucoma first appeared in this eye. He saw this patient today and she is maintaining her vision. He mentioned another similar case in which the patient believes the eye has been cured (?) by Christian Science.

Dr. C. E. Walker said the patient may lose central vision, whether we operate or whether we don't. The eserine may be sufficient. He is in favor of iridectomy in most of these cases. He mentioned a case of his own who refused operation. She returned later with one blind eye. He gave her eserine for the good eye. Later he operated upon the remaining eye; this was seventeen years ago and she has good vision today. He believes an operation is favorable for acute attacks. He mentioned another case to prove his point that cases of acute glaucoma should be operated upon, and he also believes that the chronic cases shouldn't be operated. He would do an iridectomy in Dr. Thompson's case.

Dr. Wm. C. Finnoff thinks one reason for infection after corneal trephining is that most ophthalmologists, the world over, don't have as good asepsis as the general surgeon. He marvels that there aren't more infections than there are.

Dr. Boyd thinks proper disinfection of an eye is impossible. He won't operate his case and he wouldn't operate Dr. Thompson's case.

Dr. H. M. Thompson said he is opposed to operation of his own case and will use either eserine or pilocarpin.

Dr. E. T. Boyd believes in operating all chronic cases of inflammatory glaucoma.

### Neuro Retinitis Probably Due to Accessory Sinus Disease.

Dr. H. R. Stilwill presented Master Melvin J., age 11, Swedish.

Measles six years ago; chicken pox three years ago; scarlet fever two years ago and feet swollen at time of convalescence and could not walk for two weeks. Was run over by a bicycle last June and received a slight injury to his head; no cuts or bruises at the time and no physician called; otherwise, he has always been healthy. Seven other children in the family, six younger and one older, all healthy. Mother died of tuberculosis last December after having the disease for eight years.

Father first noticed last August that the L. E. was more prominent than the R. E. and that it is gradually protruding more since then. With the Bane instrument there is 5½ mm. of proptosis. There is limited movement up and out and a tendency for it to turn down and out; otherwise, movements are good. Diplopia when looking far to the left; bulbar conjunctiva clear; cornea and iris normal; pupils equal; no increased tension or bulbar tenderness. Says he has had some pain through the eyeball at times. V. R. E. 4/3 and V. L. E. 4/4; field not taken; Wassermann test negative; von Pirquet slightly positive; urine negative and physical examination negative; nose and throat negative. An X-ray reveals "An increased area of shadow in post. portion of left orbit." Fundus examination; redness and cloudiness of the papilla with obscurations of its margins; elevation about 1 diopter; arteries slightly smaller; veins somewhat tortuous; and no retinal hemorrhages. L. E. negative.

*DISCUSSION.*

Dr. W. H. Crisp inquired about the amount of proptosis of O. S. Dr. Stilwill answered that O. S. was 5½ mm. more prominent than O. D.

Dr. H. M. Thompson feels very strongly that there is an abscess back of O. S. in this boy. He would evacuate the abscess.

Dr. Wm. C. Bane saw this case recently. He would do an exploratory operation and relieve the pressure by resecting the external rectus and turning the eye in as he did in his own case recently. The eye is easily turned forward by resecting the external rectus.

Dr. A. C. Magruder referred to a case which he saw recently in New York. The pus was from the frontal sinus. There was an exploratory operation performed and the pus was evacuated from the orbit. Two days later the frontal sinus was operated upon.

Dr. Edward Jackson said the proptosis came in this boy first and that he has good vision. The neuritis followed the proptosis. A tumor of the optic nerve produces blindness first and proptosis later. He believes, therefore, in this case that pus is present and not a tumor of the optic nerve, and that the pus should be evacuated. The sinuses should be examined by an X-ray. He wouldn't operate upon the eye as the vision is too good. He believes the involvement of the eye is entirely secondary to that of the orbit.

Dr. H. R. Stilwill said the sinuses haven't been examined. A physical examination of the boy was made by Dr. G. H. Cattermole in the pediatric clinic at the medical department of the University of Colorado. The temperature was 99.4 on one occasion. He didn't advise any operation which would destroy the vision.

Dr. E. R. Neeper asked Dr. Magruder how the pus was located in the case which he had seen recently in New York City. Dr. Magruder replied that the pus had gravitated back into the orbit from the frontal sinus. He thinks it would gravitate into Tenon's capsule in similar cases.

Dr. C. E. Walker said he saw a case operated upon by a rhinologist. The pus was above the upper lid and there was an absence of pus in Tenon's capsule. The pus was above the palpebral fascia. This case was acute.

Dr. W. A. Sedwick asked why a canula or a trochar couldn't be used to advantage to evacuate the pus.

Dr. D. A. Strickler referred to a case in which he incised the upper lid to evacuate pus. The pus came from the frontal sinus. Later the frontal sinus was operated upon by Dr. Robert Levy with remarkable success.

Dr. Edward Jackson said the chronic cases have a definite abscess cavity, but the acute cases haven't.

**Tuberculosis of the Retinal Vessels.**

Dr. P. S. Lansdale, of Longmont, presented Mr. M. K. K., age 22, occupation—farmer. Father died at age of 57, probably of paresis. Mother is living, age 65, and is in good health. There are four brothers and sisters all living and well. All were born in Colorado. Referred by an optician on February 26, 1917, on account of his being unable to fit the patient satisfactorily with glasses.

Patient complained of blurring of vision of left eye, and a feeling as of foreign body in the eye; duration about one month. Vision: O. D. 20/15; O. S. 20/200. Refraction under homatropine showed an astigmatism of +.25 D axis 90 in each eye. Fields taken roughly, normal except upper nasal in left eye, restricted. Urine tested for sugar and albumin and negative. Blood pressure not increased. Retina of left eye shows a hemorrhagic retinitis.

*DISCUSSION.*

Dr. F. R. Spencer suggested that this case seems very positively, so far as clinical evidence is concerned, to be one of tuberculosis of the retinal vessels, and he believes the patient should be given a thorough examination with this in view. It would probably be best to have the Wassermann test made also, in order that this may be excluded.

Dr. Edward Jackson thinks that the mass in the vitreous is suggestive of tuberculosis too. He has a new case at the present time with hemorrhages into the macula. There is a focal reaction from tuberculin. The exudate radiates from the macula with a decided distortion of all the retinal images.

Frank R. Spencer,
Secretary,

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## CHICAGO OPHTHALMOLOGICAL SOCIETY.

### PAUL GUILFORD, M. D., PRESIDENT.

March 19, 1917.

Dr. A. M. Carr read a paper entitled "Two Cases of Socalled Acute Inflammatory Glaucoma Relieved by Eserine."

Case 1. A man, aged 39 years, was first seen February 8th, 1917. He complained of severe pain in the left eye; there was no blurring of vision, no colored rings about lights. In the evening the left pupil was larger than the right and the pain more severe but he slept until about four A. M. The pain then became very severe and he saw colored rings about the lights for the first time.

Examination: Left eye, general ciliary injection, cornea slightly hazy, no corneal precipitates; anterior chamber both alike; iris slightly darker than right; pupil 6 mm. round and fixed to light; disc not cupped; left tension distinctly higher to fingers, the Schiotz reading was 47½ mm., right 14¼ mm.; vision 1.0 plus 2 right 0.8.

Eserine salicylate one-half per cent solution was instilled into both eyes; the tension was definitely lowered, pupils narrowed to 1 mm.

General examination: Teeth dirty, pharynx slightly congested, tenia versicolor on chest, moderate general enlargement of the lymph nodes, some hypertrophy of the left ventricle with a faint diastolic murmur at apex only; left lobe of prostate firm, some tenderness. Blood pressure systolic 126, diastolic 66. Urine negative.

Focal infection study showed positive tuberculin reaction, giving temperature of 101.4° F. with 4 mg. of old tuberculin at the 32nd hour; fluoroscopic examination of the chest negative for tuberculosis; cloudy right antrum no pus; no pus in tonsils; strongly positive Wassermann.

Diagnosis: Acute inflammatory glaucoma in the presence of active lues.

Treatment: Miotic treatment to left eye continued for six days. Then tension did not rise above 14 mm. after the second day. Eserine was then stopped to learn what would happen if the pupil was allowed to return to normal size. In the meanwhile a subcutaneous tuberculin test had been undertaken. After 48 hours, at the height of his reaction (temp. 101.4° F.) the left tension rose to 42 mm. with a pupil of but 2 mm. One-half hour thereafter both pupils were found to be widely dilated (8 mm.) One hour later despite the pushing of eserine, the left pupil remained 8 mm., right contracted to 3 mm. There was distinct arterial pulsation of left disc. During the succeeding five days no eserine was used and tension remained below 14 mm. The tuberculin test was then repeated, but no increase in tension and no dilation of either pupil occurred.

The visual fields were of special interest in this case, particularly those of the right eye. They showed the form found in primary optic nerve atrophy rather than the nasal limitation found in glaucoma.

Case 2. A man aged 33, was seen on Nov 1st, 1916, at 8 P. M., complaining of severe pain in his right eye, nausea and vomiting.

Previous history: Struck in the right eye with fist five months before. October 27, 1916, he came to the hospital for refraction. Diagnosis: Probably rupture of the choroid. Atropin was prescribed for the fellow eye for refraction. Gonorrhea eleven years ago; hard chancre three years ago, continuous treatment since. Heavy drinker until three years ago, smokes excessively.

Examination: November 1, 1916. Right eye-complete ciliary injection, some chemosis, cornea slightly hazy, pupil vertically oval 5x6 mm., sluggish in reaction; iris slightly greenish-yellow; anterior chamber very shallow; tension distinctly elevated to the fingers, and Schiotz 52¼ mm. Left tension 14¼ mm., pupil 6½ mm. Patient stated positively that he did not put atropin in his right eye. Eserine salicylate one-half per cent solution was instilled into the right eye. The pain was relieved and vomiting stopped.

General examination: Left inferior turbinate enlarged; deviation of the nasal septum to left; mucous polyp in right naris; general enlargement of lymph nodes; blood pressure systolic 160 mm., diastolic 110 mm.; urine negative.

Under eserine the next morning the right pupil was 1½ mm., tension 8½ mm.; cornea almost clear; almost an anterior chamber; plus ciliary injection and chemosis; right vision 12/200.

The next day tension of the right eye was 7¼ mm. Holocain dilated the pupil to 6 mm. but gave absolutely no rise in tension and contracted again readily after eserine.

*DISCUSSION.*

Dr. E. V. L. Brown said that in view of the temporal limitation of both visual fields in the first case and the positive blood and spinal fluid tests he would consider it to be one of early primary atrophy of the type found in tabes and the acute inflammatory glaucoma to be an independent phenomenon.

In the second case he thought it quite possible the patient got some of the atropin into the eye which became glaucomatous.

Dr. William H. Wilder asked Dr. Brown what his conception was of the way in which atropin might produce attacks of glaucoma and whether he had any idea that it might produce it in any other than a mechanical way which would be explained by the Weber-Knies theory. He said that as he remembered the record there was a large pupil when this attack occurred and the relation that that bore to the production of the glaucoma was interesting. He also asked what was the relation of the physiological cup to the rest of the optic disc—was it entirely on the nasal side?

Dr. E. V. L. Brown said that when the second attack occurred in the first case during the use of tuberculin no atropin had been used for two days; there was a temperature and when the tension was taken it was 42 and some hours afterward the pupil had enlarged to 6 mm. Then tension had been down to 7 or 8 and he thought it was the tuberculin that caused the change. He said the Knies-Weber theory appealed to him very strongly and he thought the glaucoma might be produced by instillation into the eye by dilating the pupil, in which case he thought there was a mechanical effect, and secondarily by the systemic effect. The second time they did not get the glaucoma; the tension was kept down for five days and then 3 mg. of tuberculin was used. There was a temperature of 103° F. but no dilatation of the pupil, the tension remained down and the eye had shown no further tendency toward a glaucomatous condition. They then dilated the pupil with atropin and got no tension. He said that in many cases of primary glaucoma there was a fever right along, and in many cases where one eye was involved and the other eye not involved the visual fields were taken and there was limitation of the temporal field. He thought the other case should be studied with regard to the primary optic atrophy of tabes. He said they had watched the case carefully and the cup was not on the nasal side. In one case they had atropin in the other eye and got an infection and he had seen cases in which the cups were small.

Dr. Harry Gradle was reminded of the case of a middle aged woman with a large family who came in for refraction in 1899. She returned in 1903 with a glaucoma simplex with a shallow excavation which extended almost to the edge of the disc. In 1907 his father did an iridectomy on each eye, which kept the tension down; the vision gradually decreased and the disc became paler. In 1911 she complained of various vague pains in the limbs and Dr. Grinker reported a well developed tabes, which explained the lowering of the vision with the atrophy of the disc without any tension. The pupillary reaction was out of the question. Since that time her vision has remained about stationary. She had the temporal limitation of the fields which started early, before the iridectomy was performed.

Dr. Robert Von Der Heydt said he had recently seen a patient with a third nerve paresis in whom the dilated pupil brought on mechanically an acute attack of glaucoma. He thought the origin of the acute attack of glaucoma was interesting as it was the result of dilatation of the pupil in a syphilitic constitutionally predisposed to glaucoma.

Dr. Charles F. Burkhardt, of Effingham, Illinois, was much interested in the report of these two cases because he had been treating a similar patient at long intervals for the past five years. The patient, aged 58 years, has acute attacks of glaucoma in the left eye which last, as a rule, about 6 or 7 days, and he has been able to get fairly good results and get the condition cleared up by the use of ½ of 1 per cent of eserine. He said he had on several occasions suggested that perhaps an iridectomy would be the best thing, but the patient would not submit to it.

Dr. George F. Suker thought it was interesting to find that the man was syphilitic and the mere fact that he had a limitation in the temporal field was significant of the fact that he had what might be called the higher type of tabes and therefore the glaucoma which he had was one just as Dr. Brown had attempted to explain. He thought it could be demonstrated that the patient was entirely well of the glaucoma but if the case was watched further it would be seen that the retraction of the visual field would extend to the nasal side and then there would be a uniform concentric contraction which was typical of tabes or a perineuritis. He thought he would not ascribe the glaucoma symptoms as a whole to syphilis or its toxin and advised heroic antisyphilitic treatment, particularly large doses of salvarsan followed by mercury but no potassium iodid. Syphilis *per se* has not up to the present time been considered as an etiologic factor for glaucoma. One would not want to deny the possibility, but the probability is certainly an extremely doubtful one even in the face of the bizarre activities of syphilis.

### Two Cases of Sympathetic Ophthalmia With Anatomic Findings.

Dr. E. V. L. Brown reported these cases as follows:

Case 1. Sympathetic Ophthalmia With Whitening of the Lashes: S. Davis, aged 16. The left eye suffered a penetrating steel wound in April, 1916, and was operated for traumatic cataract seven weeks later. Sympathetic inflammation developed in the fellow eye in the 11th week and enucleation was performed in the 15th week. Examination in the 7th month showed a sympathetic iridocyclitis with precipitates, thickened and vascularized iris and dense pupil membrane, with secondary glaucoma. A large number of the lashes of all four lids became dead white early in the disease. The tension gradually declined. The tonsils were removed and Hg. rubs and benzosalin used for five months with effect. Sections of the primary eye showed the typical findings.

Case II. Sympathetic Iridocyclitis and Choroiditis With Preservation of Useful Vision in the Sympathizing Eye: T. Irving, aged 32. The left eye had a recurrent luetic iridocyclitis with secondary glaucoma, for which a trephining was done in November, 1912. About 30 months later vision became blurred in the fellow eye and in the 34th month both eyes showed the type of uveitis most frequently found in sympathetic disease, viz.: thickened tumified irides with precipitates. There was a rich net of new formed vessels on the primary iris. The enucleated primary eye showed the typical changes. Mercury and benzosalin were also used in this case and a tuberculin course given. Marked improvement did not occur, however, until infected tonsils were removed, when vision cleared to 4/10 and has remained this acute for 14 months. Innumerable round and slightly irregular discrete and confluent yellowish flecks are now to be seen in the equatorial and anterior choroidea, especially below. None of them is definitely white, indicating that the choroidea is nowhere atrophic through all its layers. Only moderate pigmentation is present.

Dr. Charles G. Darling read a paper entitled "Report of Two Clinical Cases of Sympathetic Ophthalmia." (See May Ophthalmic Record.)

*DISCUSSION OF PAPERS OF DRS. BROWN AND DARLING.*

Dr. George A. Damar cited a case which occurred last year in his practice. He said that, in May, 1916, a man struck himself in the face with the end of a wrench, breaking his spectacles. A fragment of glass cut him in the right cornea, the incision extending from about the center to the edge of the cornea. The wound healed without complications, but four months to the day after the injury he noticed sympathetic irritation in the other eye. This increased and two days later Dr. Harry Gradle saw the case in consultation and advised immediate enucleation of the eye, which was done. Four days later the patient became nervous and irritable; he was naturally a very quiet man but the nervousness increased for forty-eight hours when he became violently insane and, although he was a man of exemplary habits and clean speech, for thirty-six hours there was a constant stream of profanity and obscenity. At the end of this time he slept for about six hours and awoke in an exhausted state with very little recollection of what had occurred. He said he had looked up the literature and found that he was an almost typical case of postoperative psychosis which Krafft Ebbing had described, but which more frequently occurs in women following childbirth, although they are frequently seen following operations on the eye or gentalia. He stated that the patient was now practically well with vision 20/20 plus in the remaining eye.

Dr. William H. Wilder said one point which struck him as Dr. Brown was describing his case of increased tension in the course of the sympathetic ophthalmia was the question of operation and he was interested to know that he had shown his great sagacity in refraining from operation even though it seemed to be indicated. He thought that was a point which was well worth considering in connection with any case of sympathetic ophthalmia in any stage, for the reason that the inexperienced ophthalmologist who had not seen a number of these cases through long periods of time might easily be tempted too early to resort to operative interference. If there was any one thing in connection with the treatment of these important cases which should be emphasized it was to absolutely refrain from operative interference even months and months after the subsidence of the last symptom. He thought the most that might be done would be paracentesis which might be accomplished with safety, but if there was anything brought home to him in the treatment of this disease it was that one should not jump in "where angels fear to tread." He was convinced that no operation should be attempted so far as restoration of the vision was concerned if poor vision had resulted two or three years after the subsidence of all symptoms.

Dr. Wilder considered Dr. Darling's case interesting in showing how a comparatively simple injury might be instrumental in bringing on this disease, but he thought that such cases following perforating ulcer of the cornea were rare.

Dr. E. V. L. Brown, in closing, said he was glad to learn that Dr. Wilder, too, was opposed to operation on sympathizing eyes. He cited two further cases in which operations for tension had caused only an aggravation of conditions.

Dr. Charles G. Darling, in closing, stated that the precipitates on Descemets membrane first occurred thirteen days after the patient entered the hospital. He had always thought that finding the precipitates on the posterior wall of the cornea was one of the first signs of the beginning of sympathetic ophthalmia, but in this case the precipitates did not appear until the eye had been inflamed for over a month.

### Preliminary Report on Several Cases of Lateral Ventricle Injections of Mercury for the Optic Atrophy in Tabes and General Paresis.

Dr. George F. Suker thought it was necessary to reconstruct the generally accepted conception of so-called primary tabetic optic atrophy insofar that the process of atrophy is not an ascending one, originating in the retina and then proceeding into the nerve, but that it virtually is a typic secondary optic atrophy, starting as a neuritic process somewhere in the nerve and then descending to the disc. He stated that up to the present time every form of treatment of the atrophic process had been an utter failure; that experimentally on the lower animals it had been conclusively proven that intraspinal injections never reach the optic nerve to be of any intrinsic merit in treating optic nerve lesions, but that the subarachnoid or intraventricular injection had been proven experimentally to reach the optic nerve, and had given up to date the most promising results, it having been shown by numerous cases that repeated injections could be made into the subarachnoid spaces without entailing untoward after effects, provided the injections were made with good judgment. He said the number of cases treated up to the present time was not sufficiently large to warrant the dictum that it is the *sine qua non* method, but he considered it a method worthy of further trial in selected cases. He reported seven cases which he had treated by this method and exhibited photographs showing the method of procedure. Each of the cases had had a series of five to six injections ranging from 1/100 to 1/20 gr. of bichloride; the interval between injections varied from ten to fourteen days and two had been at intervals of one month. All cases were treated in addition with mercurial rubs and iodides. From 5 to 40 cc. of ventricular fluid were abstracted and one-half the amount with the addition of the bichloride was slowly reinjected into the ventricle. The first injection was made under general anesthesia and the subsequent ones under local. They were always made on the right side of the brain into the right lateral ventricle so as to damage as little as possible any of the functionating brain centers. He emphasized the fact that care should be exercised not to pass the needle through any of the dural vessels. He said if the ventricle was not reached upon the first insertion of the needle, the same with obturator in, has been raised and lowered each time withdrawing the fluid with syringe but to wait several days or a week before attempting the insertion again, in this way avoiding undue traumatization of the brain tissue and thwarting cortical and subcortical irritation. He stated that blood-stained serum must not be reinjected with the mercury as it was certain to invite trouble, but that so far all annoying symptoms which had appeared subsequent to the injection have never remained permanent nor continued longer than three weeks. Caution must be observed when the serum is reinjected to have the inserted needle filled with fluid, so that it drips, in order not to force air into any of the ventricles.

Major H. Worthington, M. D.
Secretary-Treasurer.

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Not every test for malingering succeeds in proving to the ophthalmologist that feigned blindness does not exist. The case is recently reported of a man who claimed to be blind, and that the condition was caused by the alternating heat and cold in the place where he was employed. The case was taken to the state industrial board, and the man was awarded $3,500. Detectives were put on the case, and by a clever ruse, in which some moving pictures of the man's actions play a most important and convincing part, it was apparently proved that the man possesses good vision. The case will be decided later on.

## PREVENTION OF BLINDNESS

The following letter makes its own appeal. It scarcely seems possible that such an instance could occur when so much has been done to educate all those who come in contact with childbirth. We, as ophthalmologists, must not rest content with having started the campaigns for blindness prevention, but must continue to fight.—*Editor.*

March 28, 1917.

Editor Ophthalmic Record,

Dear Sir:

"I want to bring to your attention a case which has recently been under the observation of this society. Knowing of your interest in the effort to safeguard babies' eyesight, and also recognizing the endorsing attitude taken by the body of the medical profession, it occurred to me that you might possibly care to make editorial comment upon this case.

"The baby in question was born February 1st, just outside of Chicago, and was one of a pair of twins and the delivery was attended by a physician. When a few days old the eyes of one of the babies became sore, and when the father spoke to the attending physician about the condition of the eyes, the latter remarked that it was simply a "cold in the eyes" and advised the mother to bathe the eyes with her own milk. No further advice was given, no warning about the danger of infection to the other baby's eyes, and no other treatment undertaken until the father became insistent about ten days later and the baby was taken to a Chicago eye hospital. It was found there that both corneae were perforated, and, of course, the baby was totally blind.

In view of the facts that the methods of prevention and treatment of ophthalmia neonatorum have been known to the medical profession for about thirty-five years, that each student graduating from a medical school has been instructed concerning these measures and the grave danger to the child if they are not observed and also that medical journals throughout the entire country have for years been discussing the work for the prevention of blindness, there does not seem to be the faintest excuse for the conduct of the physician I have mentioned. Whether or not he used a prophylactic in the eyes of these babies at birth I do not know, but that has no bearing upon his subsequent course.

We complain bitterly that the midwives—ignorant and untrained women for the most part—talk such rubbish as "cold in the eyes"—"babies' sore eyes get well of themselves," and that it is natural for babies to have sore eyes, and who advise mother's milk, lemon juice, camomile tea, stroking the eyes with the wedding ring, etc.—but the dirtiest, most ignorant, most careless midwife could not have accomplished more complete destruction of a baby's sight than did this physician registered by authority of the state of Illinois.

Unhappily this is not an isolated example for all too frequently we come across general practitioners giving the same kind of advice.

The danger to the second baby in the above mentioned case is not to be passed over lightly for it was good luck and not good management that saved that infant from infection and, had its eyes become sore we may reasonably suppose that it would have met the same dark fate as did its little brother.

The better class of men need no marning nor advice, but there are very many physicians who are no more careful than the one I have described, and who are year after year augmenting the ranks of the blind in this state. We know that these men are taught better and we feel sure that they deplore blindness as sincerely as do we, but as only one baby out of several has sore eyes and there is only one case of sore eyes out of several that ends in blindness, many of these men get into careless ways and minimize the danger threatening their infant patients.

The story I have told you is such a tragic one that I thought perhaps if it were handed on to men in the state who are apt to take chances it might serve as a sober reminder and prompt them to take the unnecessary precaution and care in ninety-nine cases in order to avert the tragedy of blindness in the hundredth case.

Faithfully yours,
CAROLYN CONANT VAN BLARCOM,
Secretary, Illinois Society for the Prevention
of Blindness.

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A meeting of the Illinois Society for the Prevention of Blindness was held in Chicago on Dec. 18th, to welcome the society's new president, Charles L. Hutchinson, and as a memorial of the late president and founder, Byron Lathrop.

At this meeting it was pointed out that there are more than 2,000 men, women and children, needlessly blind, in the state of Illinois. Practically all of these cases of blindness would have been prevented, if the Crédé method of treatment had been employed.

The second annual report of the National Committee for the Prevention of Blindness contains the following interesting items: They have appealed to the eye and ear of the public through press articles, pamphlets, exhibits, lantern slides and lectures, having published 300,000 pieces of literature, contributed to magazines and newspapers a score of articles, produced two new exhibits of five panels each, sent their exhibitions into 42 cities and towns in 21 states, added about 150 subjects to their slides, delivered or arranged to be delivered 100 lectures, visited and served in person 10 states, corresponded with practically every state in the Union, and answered inquiries from several European countries, from South America, the Philippines, China, South Africa, India and Australia.

The forthcoming report on the blind in the United States announced by Director Rogers of the Bureau of the Census, Department of Commerce, indicates that 30.8 per cent, or somewhat less than one-third, of the blind population lost their sight when less than 20 years of age (including those born blind); 47.4 per cent, or somewhat less than one-half, during the early or middle years of adult life (from 20 to 64 years); and 21.8 per cent, or a little over one-fifth, in old age (after passing their sixty-fifth year). More persons were reported as having lost their sight when less than 5 years of age than in any other 5-year period of life, 16.4 per cent, or about one-sixth, of the total being included in this group; persons reported as born blind formed 6.6 per cent of the total and persons reported as losing sight when less than 1 year old 5 per cent, these two groups together contributing 11.6 per cent, or more than one-tenth, of those reporting the age when vision was lost.

The greatest loss of sight, by periods of five years, occurred in the first period of life. These figures are based on information from 29.242 blind persons of the 57,272 to whom schedules were sent by the census bureau. There has been a marked decrease since 1880 in the proportion of blind who lose their sight in infancy. This decrease is to be explained in great measure by the increased use of the Credé method of prophylaxis for ophthalmia neonatorum. The proportion of blind who lost their sight during the early or middle years of adult life has increased since 1880 and this increase is probably due in part to the great industrial growth of the United States during the last thirty years, with its natural increase in blindness due to occupational injuries and diseases.

A new movement is being launched for the purpose of creating industrial workshops for blind soldiers. The responsible parties of this movement are not only philanthropists, but also commercial and industrial societies. One of these workshops will be given over to the manufacture of automobile and aeroplane motors; it will be opened soon. This work has been conceived in a practical spirit, and is expected to yield good results. The blind, themselves, will participate in all the benefits of the enterprise in the proportion of 95 per cent, which will be added to their salary. The industrial side of the movement is taken care of by one philanthropic association which proposes to lodge the unmarried blind workers coming from regions invaded by the enemy, and to look after their material welfare, besides forming little reunions, circles and groups to look after the intellectual welfare of the blind. This movement will be known as "the trades of the blind soldiers."

The first regular monthly meeting of the executive committee of the Illinois Society for the Prevention of Blindness was held on March 16th. The secretary reported upon the work of the society from Nov. 1, 1916, to March 1, 1917. Among the many phases of activity of this society the following are a few items of special interest:

Sixty-six cases of babies' sore eyes were investigated and proper treatment given. In one case it was necessary to arrest both parents in order to get the care for the baby, which the doctor felt was necessary.

Extensive social service eye work is being carried on constantly by the secretary, and 13,200 educational leaflets on the care of babies' eyes have been distributed by school and visiting nurses, infant welfare workers, etc., in six languages.

Violations of the reporting law by eight midwives and four doctors, were reported to the State Department of Health.

As a part of the educational work the secretary has given 35 talks and addresses before women's clubs, nurses' organizations, school children, etc.

Investigation of schools for midwives shows that there was not one school in Chicago equipped for adequate training. In one instance the instruction was given in the dirty kitchen of a dirty tenement—the residence of the physician conducting the so-called school.

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The following lines were sent to the OPHTHALMIC RECORD by Dr. E. B. Cayce, of Nashville, Tenn. They were written by Mr. Dixon Merritt, editor of the Tennessean and American.

### BEING BLIND.

Is you ever had de doctor do a projeck wid yo' eyes—
Drap some draps out o' a drapper, whiles he's lookin' big an' wise,
Say he gwyn 'er spand de pupils so he git de 'fraction right,
Tell you keep 'em shet an' fas'ened cause dey couldn't bar de light?
An' you set dar fer a hour, jes' as blin' as any bat,
Whiles de other folks a-waitin' carries on dey talk an' chat,
An' you hears 'em sorter laffin', but you can't tell wha dey's at,
An' de black's 'bout fo' times thicker than de darkes' sort o' night?

'Tain no 'tic'lar monst'us 'fliction—jes' a hour you can't see;
But it makes you lots more human dan de thing you uster be.
Nex' you sees a ole blin' beggar wid a tin cup in his han',
You ain't gwyn 'er santer by him lak you's sultan o' de lan',
But you's gwyn 'er stop an' howdy, an' you'll maybe drap a dime,
An' you'll sorter laff and ax him, "Ain't de feel o' sunshine prime?"
'Cause you's had yo' little 'sperience, bein' one de blin' folks' ban'.

# CORRESPONDENCE

## VISUAL REQUIREMENTS OF MILITARY AVIATORS.

To the Editor: As Dr. Small's "chief purpose was * * * to get suggestions and criticisms," etc., he will not take it amiss that he has not convinced me with his reply (Jour. A. M. A., April 21, 1917, pp. 1205-6.)

1. Regarding color blindness. Will it not be appropriate to let experience decide? Do we know exactly at what distance colors can be distinguished? Have we the right understanding of the value of the appreciation of the colors in this particular kind of work? I am sorry that the one color-blind candidate of the thirty-nine [to which Dr. Small refers]was debarred from this service, as his capacity should be compared with the other thirty-eight. We must not forget that we will have the cream of the fighting men in the aviation department, physically and mentally.

Dr. Small compares the aviator with the chauffeur. Do we know of accidents with automobiles due to color blindness? And still the usual percentage of color-blind chauffeurs must be present. What tests are we going to apply? What will be done with those who have an imperfect color-sense?

2. As to the vision 20/20 (not "refraction") in each eye and the examination under a cycloplegic. The aim of our investigation must be to find the *function* of the eye and not "the absolute refraction." which is of far less importance. We know that only ten per cent of the eyes which have vision 20/20 are ideally emmetropic, the rest slightly hyperopic. What can be the value to know that under a cycloplegic this condition is slightly hyperopic? The vision 20/20 proves that the balance between ciliary muscle-tonus and the anatomic relations of the eye is at that moment ideal.

The habitual use of a cycloplegic has its distinct disadvantages, which I will not enumerate here. The reaction time of the iris will be often overlooked, which represents a valuable condition for an aviator on obvious grounds. The example cited by Dr. Small of a beginning retinitis pigmentosa does not strike me as being very demonstrative. When has an ophthalmologist found this condition in a patient with vision 20/20, normal visual field and normal light sense? What does it help us to know "the amount and extent of posterior synechiae?" I feel that a competent ophthalmologist should be able to find out possible pathological conditions in eyes of men with normal vision and in the prime of life without artificial mydriasis.

3. As to the value of binocular single vision, Dr. Small has not given me the value of this faculty for the aviator, neither the terms in which he expresses his findings. How he is able in "using Stevenson's tangent method" to distinguish simultaneous vision from binocular single vision I do not know. As it is a well known fact that the faculty of binocular single vision is not a constant and that all kinds of degrees appear, how, in the case of the aviator, does he determine this degree?

As the requirements for the aviator are many—but at the same time as the number of applicants is obviously too small at present in the United States—we ought practically to determine the value of each faculty for doing competent work. As Dr. Small refers to ocular conditions among chauffeurs which should be condemned, it demonstrates at the same time that many factors, of minor value each, may make up a valuable candidate. As an example I like to point to the quick motion through the different strata of the atmosphere with their different aerial perspectives, to which an aviator has to become accustomed and which an oculistic examination never can determine. From an ophthalmological standpoint we should be non-dogmatic. We will have to learn from experience and for the present adapt f. i. the rules accepted by the French and English —which I do not know.

Dr. Edmond Blaauw, C. A. R.

Buffalo, N. Y., April 24th, 1917.

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Military experts are practically agreed in the belief that, in modern warfare, the side will win which possesses the largest and most efficient aerial service. In America, the number of our present fighting aeroplanes is ludicrously small, while the number of applicants for aviation service is exceedingly large. It is consequently easy to select, from this large number, plenty of men whose visual requirements are normal in every respect. Why, then, accept men who are known to have some ocular abnormality, when we can get more than are required for our present needs who are perfectly normal?

I would most heartily welcome the views of other ophthalmologists on this subject, as Dr. Blaauw has not convinced me that my contentions are untenable.

Charles P. Small.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 25 E. Washington, St., Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Mr. S. L. Buatia has been appointed ophthalmic house surgeon to St. Thomas Hospital, London.

Gordon Alan Walker, R. N., a former Ophthalmic House surgeon at the Royal Infirmary, Sheffield, was killed in action on Nov. 14th, aged 28 years.

Governor Julius C. Gunter has appointed Dr. A. C. Magruder, of Colorado Springs, and Dr. F. R. Spencer, of Boulder, members of the Colorado State Board of Medical Examiners.

Bellevue Hospital, which is being reconstructed, will include in its ophthalmological service, fifty beds in a special pavilion. This department is under the direction of Dr. Charles H. May.

Dr. G. F. Libby, formerly of Denver, writes from Roland Park, Md., that he has sufficiently recovered from his recent indisposition to attend the Baltimore eye clinics and visit the medical libraries, schools and hospitals.

At the April meeting of the Colorado Ophthalmological Society the following officers were re-elected: Dr. J. A. Patterson, Colorado Springs, chairman of the executive committee; Dr. E. F. Conant, Denver, treasurer, and Dr. F. R. Spencer, Boulder, secretary.

Mr. O. B. Carson, Advertising Manager of the American Optical Company, delivered an address on January 11th before the Maine Society of Optometrists, at Portland, Maine. His subject was "The Business Side of Optometry." An address along similar lines was made by the same speaker on January 30th before the Granite State Optometrical Association, at Manchester, N. H.

A newspaper clipping comes from Dr. E. C. Ellett of Memphis giving an account of a night orgy in a town in Arkansas in which bay rum played the principal part. A quart of this poison was consumed by three men. Two of them died without regaining consciousness, and the third, in the opinion of the attending physicians, has practically no chance for recovery.

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The following bequests to British institutions have been announced: $2,000 to the Royal Westminster Ophthalmic Hospital, from the trustees of the Zunz bequest.

Something over $1,000,000 to the blind asylums and ophthalmic institutions in the city of London and the counties of London and Surrey, from Mr. Leopold Salomons.

$35,000 to the Glasgow Ophthalmic Institution and $5,000 to the Glasgow Eye Infirmary, from Miss Mary Kelvinside.

$1,500 to the Portsmouth Eye and Ear Infirmary from Dr. John T. Leon.

$2,500 to the British Ophthalmic Hospital at Jerusalem from Major Ernest B. Walton.

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Special Fellowships in Ophthalmology and Oto-Laryngology in connection with the University of Minnesota have been established by Dr. Frank C. Todd, of Minneapolis, and Dr. Frank E. Burch, of St. Paul, both connected with the teaching staff of the School of Medicine. These Fellowships carry with them the same stipend that is paid by the University of Minnesota to the University Fellows, viz., $500 the first year, $750 the second year, and $1,000 the third year. Such Fellows will spend one-half of their time in the private clinic of Dr. Todd or Dr. Burch, and the other half in laboratory and clinical work and in pursuit of certain courses for specialists in Ophthalmology and Oto-Laryngology at the University of Minnesota. For work done in these private clinics credit will be given toward the degree granted by the University in the course of Ophthalmology and Oto-Laryngology given at the University of Minnesota to accepted Doctors of Medicine covering a period of three years which prepares the physician for the specialty of Ophthalmology and Oto-Laryngology. Applications for these Fellowships may be made to the chief of the department of Ophthalmology and Oto-Laryngology, Dr. Frank C. Todd, Minneapolis, Minn.

N. Bishop Harman, in the *British Medical Journal* of Feb. 17, discusses the problem of moving pictures in their effect upon the eyes of children. He states five factors which are chiefly responsible in causing fatigue of the eyes: 1. Glare. 2. The flicker and rapidity of the movement of persons and objects in the pictures. 3. The prolonged concentration required to grasp the story of the pictures. 4. The long duration of the exhibitions. 5. The location of the seat is in the majority of cases too close or too far away from the screen for proper visual effects.

The following deaths of American ophthalmologists is announced:

Charles F. Nolen of Baltimore, aged 47 years.
Benjamin Wolff of New York, aged 42 years.
John J. Corrigan of Pawtucket, aged 59 years.
Henry Horlbeek of Columbia, S. C., aged 43 years.
Miles C. Dunn of Henderson, Ky., aged 52 years.
George F. Clark, of Winchester, Ky., aged 47 years.
H. D. Baker of Springfield, Mo.
Willoughby Walling of Chicago, aged 68 years.
Byron S. Gailey of Jacksonville, Ill., aged 43 years.
Charles G. Hogsett, of Fort Worth, Texas, aged 44 years.
Dr. W. H. Winslow, Boston, April 8. Aged 76.
Dr. H. B. Caffey, Pittsburg, Kan., April 16. Aged 37.

The death is announced, at the age of 49, of Théodore Guilloz, a pupil of Charpentiér. He was one of the first to obtain good photographs of the fundus of the eye. He founded the department of electro-therapeutics and radiography at the University of Nancy.

Dr. John L. Moffatt, who died at Ithaca, N. Y., on February 18, aged 63, was editor of *Ophthalmology, Otology and Oto-Laryngology* from 1901 to 1904, and of the *Homœopathic Eye, Ear and Throat Journal* from 1905 to 1910.

## NEW BOOKS

The Nervo-Muscular Mechanism of the Eyes and Routine in Eye Work. By G. C. Savage, M. D. Three full-page plates and four cuts. Published by the author, Nashville, Tenn. Printed by McQuiddy Printing Company, Nashville, Tenn. Price $1.00.

# CHICAGO EYE CLINICS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
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| 9 A.M. | Richard S. Pattillo(P.-G.)<br>G. W. Mahoney (Poli.)<br>R. B. Stephenson (P.-G.)<br>Carl Wagner (E.E.N.T.) | *Geo. F. Suker (P.-G.)<br>C. H. Francis (Poli.)<br>A. Duncan (P.-G.)<br>A. G. Wippern(E.E.N.T.) | W. F. Coleman (P.-G.)<br>S. M. Hager (Poli.)<br>H. N. Lyon (P.-G.)<br>Carl Wagner (E.E.N.T.) | G. W. Mahoney (Poli.)<br>Rich'd S. Pattillo (P.-G.)<br>R. B. Stephenson (P.-G.)<br>A. G. Wippern(E.E.N.T.) | C. H. Francis (Poli.)<br>R. B. Stephenson (P.-G.)<br>J. A. Cavanaugh (E. E. N. T.) | S. M. Hager (Poli.)<br>C. W. Hawley (P.-G.)<br>H. J. Morlan (P.-G.)<br>A. G. Wippern(E.E.N.T.) |
| 10 A.M. | Brown Pusey (N.W.U.)<br>Geo. T. Jordan (N.W.U.)<br>Robert Blue (N.W.U)<br>Every day, 10-12 A. M.<br>Harry Gradle (E.E.N.T.) | J. R. Hoffman(E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman(E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman(E.E.N.T.) |
| 1 P.M. | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>E. V. L. Brown (County)<br>and<br>Geo. F. Suker (County)<br>Daily, 2:30 P. M.<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffmann (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>Oliver Tydings (E. E. N. T.) | W. Allen Barr (Inf.)<br>*Frank Allport (St. Luke's)<br>*Frank Brawley (St. Luke's)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>*PaulGuilford(St.Luke's)<br>*Casey Wood (St.Luke's)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensobn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>H. W. Woodruff (Inf.)<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>Oliver Tydings (E. E. N. T.) |
| 3 P.M. | *Wm. E. Gamble(U.of I.)<br>Wm. H. Wilder (Rush)<br>H. S. Gradle Daily<br>3-5 (E. M. D.) | R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.)<br>*Wm. E. Gamble (U. of I.) | Wm. H. Wilder (Rush)<br>R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.) | Geo. F. Suker (P.-G.) 2-5<br>H. Cuthbertson<br>A. Duncan |
| 4 P.M. | W. F. Coleman (P.-G.)<br>H. N. Lyon (P.-G.) 2-5 | C. W. Hawley(P.-G.) 2-5<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | J. B. Loring (U. of I.)<br>E. K. Findlay (U. of I.)<br>G. F. Suker (P.-G.) 2-5<br>H. Cuthbertson (P.-G.) | C. W. Hawley (P.-G.)<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | W. F. Coleman (P.-G.) 2-5<br>H. N. Lyon (P.-G.) | |

*Special operative eye clinic.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 1844 W. Harrison Street.

E. M. D.: Emanuel Mandel Dispensary, 1012 Maxwell St.

County: Cook County Hospital, W. Harrison and Honore Streets.

Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.

M. H.: Mercy Hospital.

Poli.: Chicago Policlinic and Hospital, 221 W. Chicago Avenue.

P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.

N. W. U.: Northwestern University, 2431 Dearborn Street.

Rush: Rush Medical College, W. Harrison and Wood Streets.

St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

U. of I.: College of Medicine, University of Illinois, Congress and Lincoln Streets.

THE
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# THE DIAGNOSIS OF COUCHED CATARACT

BY
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IND. MED. SERVICE RETIRED,
LONDON, ENGLAND.

The diagnosis of a case of couched cataract presents the surgeon with three distinct problems: (1) to ascertain whether a couching has been done or not: (2) to discover the new position of the lens and its condition; and (3) to decide whether it is advisable to operate. Only those who work in lands, where the couching of cataracts is an everyday occurrence, will take a deep concern in such questions; but the subject has a scientific interest which cannot fail to appeal to any one who devotes his serious attention to the large questions of ophthalmology.

It might be thought that the simple and obvious way to ascertain whether a couching had been done would be to ask the patient or his relatives. In a large number of cases this is of course sufficient; but in India, at all events, there are many who will deny the operation they have undergone. This is due to the fact that it is widely known among the people that the British surgeons view the coucher and all his methods with extreme disfavor. Patients are therefore reluctant to admit having consulted him, and they also are afraid lest treatment should be refused them, once their true history is known; for it is common knowledge amongst them that the Western practitioner is extremely reluctant to interfere with an eye which a coucher has spoilt. It is well, therefore, to consider carefully the grounds on which the physical diagnosis of a couched lens should rest.

We will first consider the case of those eyes in which **the cataract has been definitely removed from the neighborhood of the pupil.** These present certain well-marked signs: (1) *The pupil is brilliantly black,* and (2) *the plane of the iris is flat.* It may seem strange to insist upon these points, but to the trained eye they are so obvious that diagnosis can often be made, as soon as the patient takes his seat in the out-patient room, in front of the surgeon. The quality of the blackness of the pupil is difficult to put into words, but it arrests the attention by its contrast to the ordinary appearance of the pupil in people so advanced in life as the subjects of cataract usually are. The phenomenon is due to the whole cataract, capsule and all, being thrust away from the pupillary area, and it can be equally well seen in cases which have undergone the intra-capsular operation. Then, with regard to the flattening of the iris, the trained eye is used to the appearance presented by the slight forward convexity of that membrane as a result of the presence of the lens behind it; whereas the complete removal, not merely of the lens, but also of the support of the suspensory ligament, makes the iris flatten out in its own plane.

On close inspection we notice other signs. (3) *The iris,* deprived of the support of the lens, *is often tremulous.* This can best be observed if the patient is bidden to move his eye sharply in different directions. (4) *Scars* may be seen *on the iris.* These are the result of tears of the membrane during the operation. In some cases they are associated with an irregularity of the pupil, which may be extreme, or with a limitation or absence of pupillary movements. In other cases the immobility of the pupil, which may be absolute, is associated with (5) *an atrophic condition of the inner free margin of the iris.* Such a condition is only met with in very long-standing cases. Transillumination of the eye will sometimes show up the scars, or the atrophic condition just referred to, as light spaces against the rest of the dark background of the iris. (6) A careful study of the cornea, or of the sclera in its neighborhood, will often reveal *evidence of the wound made by the instrument* during couching. In the cornea these take the form of small nebulæ or leucomata, lying just within the limbus, and usually in the temporal quadrant. In one case a persistent fistula was met with, as the result, presumably, of the bursting of a staphyloma along the original track of a septic wound. Scars in the sclera are much more difficult to distinguish, but they can sometimes be detected by the pigmentation which overlies them; such pigmentation may be due to the inclusion of uveal pigment in the track of the wound, as has been shown by our pathological specimens: but this is not the only possible explanation of the discoloration, for in dark-skinned races a certain amount of pigmentation is not uncommon after injuries of the conjunctiva. In one of the eyes we examined, there was a filtering scar over a fistula which had formed along the track of a scleral wound. (7) We come now to the leading feature in the diagnosis of these cases—viz., *the recognition of the displaced cataract in its new position* within the eye. In the rare event of a lens being dislocated into the anterior chamber and fixed there, its presence can be easily recognised. Again, in a large number of the cases which present themselves in the out-patient room, the cataract can be seen floating freely in the vitreous, and bobbing up and down with the movements of the eye. In the case of the milky Morgagnian cataracts, or of those cortico-nuclear cataracts which present a glistening and pearly-sectored appearance, it would be difficult even for a beginner to fail to see the lens, which usually lies at the lowest part of the eye. As the patient sits in front of the surgeon, the gleam of the white cataract can be caught each time he looks downward, even though a distance of two or three feet may separate him from the observer. In the case of darker cataracts, such as the pigmented nuclear ones, frequently met with in Indian practice, a closer examination is required.

The patient must be brought nearer to the observer, and facing a good source of illumination. The surgeon then focusses the light on the pupil by the aid of a lens, bidding the patient at the same time to look downward. If this fails, the patient is instructed to bend his head forward, holding the face horizontal; the surgeon then places one closed fist on the back of his head, and gives a number of sharp raps on it with his other fist; when this is done, it is often found that the lens has floated forward on to the pupil. If the patient's head be now quietly raised, the lens can be seen dropping gently away from the pupil, which turns from white or brown (according to the nature of the cataract) to black as it does so. The experiment can be repeated again and again. Sometimes the lens falls away from the pupil so quickly that the surgeon must stoop down and look up at the eye in order to see it. If even after this test he fails to see the cataract, it is safe to assume that it is tied down in its new position by inflammatory adhesions excited by the septic matter introduced at the time of operation. Such adhesions may consist merely of delicate fibrils of exudate, which slightly increase the consistency of the vitreous body, and so to a small extent limit the excursions of the lens; or they may be represented by firm and highly organized fibrous tissue, which mats the lens in its new position, and which may be so strong that even a post-mortem dissection would fail to disengage the cataract from its adventitious position. The dilatation of the pupil by a mydriatic will often make it quite easy to discover the whereabouts of the cataract, especially if a strong light, whether natural or artificial, is focussed on the eye by means of a lens. Natural light is preferable to artificial if possible, especially in a country like India, where powerful daylight can be counted on during a large part of the year. The advantage of the white light is especially marked when dealing with brown or dark-coloured cataracts. An examination with the ophthalmoscope or with a transilluminator may sometimes be of value, but in the class of cases we are now discussing, these are seldom of much use, if the examination just described fails to reveal the whereabouts of the cataract.

There remain a few points of interest which deserve mention. Though in the great majority of couched eyes the cataract lies in the lowest part of the globe, it may be found either to the inner or to the outer side, or even in the upper half of the eye. Sometimes it flaps backward and forward with the movements of the globe, swinging on a hinge, which evidently consists of the remaining fibres of the suspensory ligament, and which may be situate in any possible direction, though most often it lies below. It will be readily understood that if this hinge is situate below, or to the inner or outer sides, the lens will flap away from the pupil downward, or to the hinged side, as the case may be. It is not inconceivable that, in repeatedly doing so, it may inflict some measure of injury on the neighboring part of the ciliary body and retina, and may thus excite a local inflammation which will tend in time to tie the cataract permanently in the new position towards which it flaps, away from the pupil. In the event of the hinge being in one of the three directions now under discussion, the cataract will tend to fall forward onto the pupil only when the patient stoops forward, so as to bring his face into the horizontal plane. When the hinge is situate above, the latter is one of the few positions of the face in which the pupil clears itself in ordinary cases; but one meets with instances in which, despite the hinge being above, the pupil remains clear except when the face is horizontal, the lens lying most of the time in the upper segment of the eye. There is another factor, and probably a more frequent one, than that of the local injury inflicted by the lens during its movement, which tends to tether it *in situ*. This is the increasing consistence of the vitreous, due to the deposit within it of inflammatory matter, a point which has already been alluded to.

Our next consideration is that of the cases in which the cataract still lies in front of the pupil. It then seldom, if ever, is in absolutely normal position, and it very frequently is found to have been moved bodily downwards or to one side, or obliquely. Again, but more rarely, it may be tilted backward at an angle with the plane of its normal position. In a great number of cases the history will help one, and, even when the patient denies couching, he will very often admit to having had "medicine applied to his eye by a native practitioner." Should no such evidence be forthcoming, there may still remain that of the lesions to the cornea, the sclera, or the iris, to which attention has already been directed in the previous section.

From these cases we will pass on to consider those in which the lens cannot be seen at all, owing to the occlusion of the pupil. Here our difficulties are greater still, and, if the history fails us, we must fall back on a careful search for signs of wound scars in the cornea or sclera, or of tears in the iris. A point which is always suggestive is the existence of a cataract in the opposite eye. In such cases as these, the contents of the chamber may be found to consist of pus or of blood.

Our next group is a still more difficult one, for in it no fundus reflex can be obtained. It embraces a number of conditions which may be shortly dealt with in turn: (1) Those in which the vitreous body has been converted into a more or less highly organised inflammatory exudate, which is impenetrable to the light of the ophthalmoscope. (2) Those in which this vitreous exudate has contracted inflammatory adhesions to the retina, and by its shrinkage has determined the total detachment of that membrane. (3) Those in which the vitreous chamber has become filled with blood. It is obvious that in all such cases our main dependence must be upon the history, though the other indications already outlined may help us in some of them.

Lastly there are the cases in which the eye is undergoing shrinkage, and those in which phthisis bulbi is following pan-ophthalmitis. The history of the signs and symptoms of severe iridocyclitis or of suppuration will, in India at least, always excite a suspicion of couching having been performed, unless the patient has a definite story to tell of some other form of injury. Strangely enough, the inventive faculty of the Indian patient does not rise to the height of vamping a narrative of the kind. If he has had an injury, he tells of it readily. If he has been couched, he stolidly denies that anything occurred to cause his trouble, which he states "simply came of itself."

It will be observed that in the preceding remarks we have dealt with two of the problems which confront us in diagnosis, for the simple reason that it is very difficult to separate them; to do so would mean endless repetition. The discovery of the new position of the lens, and of the degree of fixation, if any, it has undergone, can hardly be divorced from the question of whether a couching has or has not been performed. Our third problem was to decide whether it is advisable to operate in any cases, and if so, in which. The Baron de Wenzel, in his treatise on cataract,* records two cases in which his father successfully extracted couched lenses. A number of Anglo-Indian surgeons have had similar experiences, but most of them are reluctant to interfere with these cases oftener than they can help, because, should the operation fail, it is extremely likely that they will unjustly incur the odium for the loss of the patient's vision. On this subject Maynard wrote (*Ophthalmic Review, April*, 1903): "It may be justifiable to attempt the removal of a recently couched lens. If not recent, and more especially if the lens is fixed, it is wiser to leave it alone, even if the sight is failing." To the writer's mind, the one crying indication for the removal of a couched lens is that it flaps across and obstructs the pupil. He agrees strongly with Maynard, that if the lens is fixed it is better left alone; but he is doubtful whether the time element is of very great importance, in comparison with the mobility of the cataract; for a study of the fifty-four globes to be discussed later has shown him that the fixation or otherwise of the lens is a question of the amount of septic action set up by the operation. If this is small, the lens may continue mobile, even for a very long period; if it is more severe, the latter will soon be tethered. Dealing with this subject five years ago (Proc. of S. Indian Branch of B.M.A., March 13, 1912), the author wrote as follows:

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*Translation by James Ware, surgeon, F. R. S.; London, 1812.

"We are extremely reluctant in Madras to undertake further operative procedures on an eye in which couching has been performed. Removal of a lens dislocated into the posterior chamber obviously means a wide opening up of the vitreous; and even if the immediate result appears good, there is little guarantee that the benefit will continue. Of eighteen cases in which the lens was removed, twelve obtained better vision at the time, four remained *in statu quo,* and two were rendered worse. I cannot but think that these statistics would suffer if the cases were followed for some years. On five occasions we undertook the laceration of an after-cataract which blocked the line of sight after couching. In two cases there was considerable benefit, whilst in three vision remained *in statu quo antea.* In four cases an iridectomy was performed for optical purposes. In two vision improved slightly, whilst in the two others it remained as before.

"Personally I have a strong and growing objection to undertake any operative procedure on a couched eye. Firstly, there is the risk of lighting up a septic explosion, for which the real responsibility lies with the coucher's original operation; and, secondly, there is the danger of being saddled with the discredit which is justly due to another man's failure."

Reviewing these paragraphs in the light of the much better knowledge of the pathology of couching which we possess today, he would urge that only freely movable cataracts should be touched, since want of mobility is associated with profound changes in the vitreous due to septic action. The object that a surgeon sets before him, work where he may, is ever the same —"The greatest good of the greatest number." Failure in such cases as these may play into the hands of the coucher, and enable him to extend his sphere of influence at the expense of the beneficent work of the Western hospitals. The problem in India is a difficult one, in which surgical considerations do not stand alone, but are interwoven with social, moral, and even political questions. Each surgeon must decide for himself what line he will take, and follow it fearlessly.

In this connection, Major Kirkpatrick's experience in Madras is of considerable value, for he has removed a number of couched lenses, and has been "struck by the rarity of vitreous escape, even after fairly extensive investigation with a spoon," during this operation. He adds: "I have noticed that the vitreous body becomes shrunken and extraordinarily tough, so much so that, when an eye is excised (either for glaucoma or for iridocyclitis following Mahomedan operation), the whole globe can be held up by a strabismus hook transfixing the vitreous, though the latter appears perfectly clear. The vitreous undoubtedly does undergo shrinkage, and leaves a large space, which is occupied by aqueous." It is plain that he is referring here to cases in which the vitreous body has undergone some measure of inflammatory organisation, which might be expected to limit the mobility of the lens, and it will be of great interest to learn whether the conclusions of so reliable and experienced an observer ultimately coincide with the author's, that interference should be confined to those cases in which the movements of the cataract within the vitreous body are noted to be free. Once again, let it be emphasized that there are two distinct questions at issue—one the benefit of the individual patient, and the other the good name of Western surgery. Each man must be guided according to the dictates of his own personality and of his environment.

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# A CASE OF PNEUMOCOCCUS CONJUNCTIVITIS OF GREAT CHRONICITY AND SUBSEQUENT DEATH FROM PNEUMONIA.

BY

C. A. CLAPP, M. D.,

BALTIMORE, MD.

Since the first report of pneumococcus conjunctivitis by Morax and Parinaud in 1894 and later writings by Gasparini, Axenfeld, Gifford and Pichler, the condition has been recognized and reported.

Nearly all of the text books on ophthalmology give brief mention, and all state that it follows an acute course, lasting from six to ten days and with favorable prognosis. Subconjunctival hemorrhages may appear, and rarely toxin iritis and ulcer of cornea. Gasparini speaks of pellicles of fibrin, which occur on the lids which is quite typical. No mention is made of a chronic condition. In the "Encyclopedia of Ophthalmology," speaking of 177 cases in Montreal, the author mentions that there was a frequent tendency to recurrence, that cases existed all the way from mild catarrh, to severe blenorrhea. Although Axenfeld has shown that pneumococci occur in 5 per cent of normal conjunctival sacs; the pneumococcus conjunctivitis is rather rare and has never occurred in our experience in a chronic form prior to present case, which history is so unique that we have the temerity to report it.

**Case History. Mrs. L. (widow).**

First consulted us February 12, 1909, for relief of headaches which were caused by a refractive error. As there was slight conjunctivitis i gr. zinc sulphate solution was prescribed. Patient was not seen again until August 6, 1912, when she returned with decided conjunctivitis, apparently catarrhal in character, and astringent collyrium ordered. Not seen again until November 23, 1912, when there was profuse secretion with decided pellicles of fibrin which could very readily be removed. Film preparations were made but no definite organism could be made out. Argyrol 25%, silver nitrate 2½% applied to lids in office: zinc sulphate ointment, 1:3000 bichloride, etc. Eyes slowly became better until April 1, 1913, when they were nearly well, but five weeks later there was much thickening and profuse secretion: On May 17, 1913, a catarrhal ulcer of cornea developed at lower margin of left cornea. From last of May, until the last of September, eyes were much better, although some secretion existed. On September 22, 1913, there was an infiltration in lower part of left cornea, with decided thickening of both fornices of conjunctiva, so blue stone was used. On January 6, 1914, a deep ulcer at limbus (down and in) developed in O. S. After ulcer healed the treatment by astringents and antiseptics was stopped and a very marked improvement took place and we concluded that overtreatment had occurred. Conjunctiva looked healthy on March 4, 1914, and vision was 20/30 in O. D., and 20/100 in O. S. with no improvement. Patient suffered no inconvenience until October 21, when she returned with a recurrence of all symptoms. Film preparation still showed nothing definite, but pneumococci were suspected and 2% ethyl-hydro-cuprein was used, also a bouillon culture of Bulgaria bacillus. In two weeks the eyes were much better with less secretion but patient was under treatment entire winter until February 26, 1915, when she was again discharged. Patient returned on January 26, 1916, with history that eyes had been sore one week. She now had velvety conjunctiva with a mucoid secretion. A film preparation at this time revealed what seemed to be an almost pure culture of pneumococci. Cultures were made by Dr. Spencer who confirmed findings and an autogenous vaccine made. As ethyl-hydro-cuprein was not obtainable, with exception of an old solution in the office, we were unable to follow this line of therapy as energetically as we desired. Vaccines were given, starting with 25 mil. on April 3, and increasing to 50 mil. on the 19th of April when patient complained of some lassitude and dropped back to 25 mil. and worked up to 40 mil. On June 22, 1916, patient was discharged with no secretion and smooth conjunctiva, apparently the best for years. On July 8, 1916, patient developed a typical double lobar pneumonia and died on July 11, 1916.

While the pneumococci were not found in the early attacks any one watching the case would have easily been convinced that subsequent attacks were of the same character as the earlier ones. Nor can we explain why after the vaccine therapy the patient should have succumbed to an attack of pneumonia, when theoretically, at least, her resistance should have been increased. The recurrence each winter is in accordance with Axenfeld's views, that it occurs most frequently during cold months and in northern climates. Although Frankel in 1886 observed that non-lethal doses of the pneumococci produced a certain amount of immunity, this observation was before the present differentiation into the groups as now known, and therefore, we can not know which particular organism was being used, but the later work would go to prove that it was either Group I or II. In acute lobar pneumonia, active immunization by vaccines is not apparently of much value as little result is seen before the sixth day, the time of natural immunization, but in an essentially chronic condition as this appeared to be, one can easily see how this active immunization might be of great therapeutic value.

As to the use of passive immunity by means of the immune sera, which seems to offer the most hopeful outlook in acute lobar pneumonia, we have no experience but can see no advantage over an autogenous vaccine unless time were of the utmost importance. We can not but believe that the chemo-therapy as offered by Morgenroth in ethyl-hydro-cuprein was of value in this case and regret our inability to continue that line of treatment.

We feel that we are justified in our diagnosis of Chronic Pneumococcus Conjunctivitis not only on the bacterial examination but also upon its response to treatment along that particular line.

# A RARE INTRAOCULAR TUMOR.

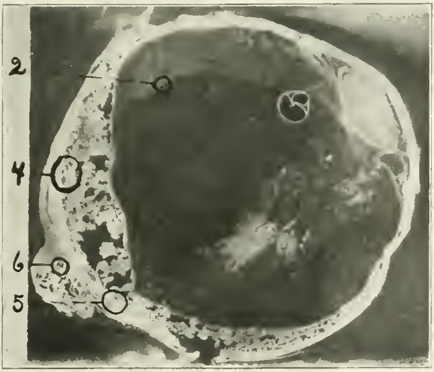
BY
HAL R. WRIGHT, M. D.
COLUMBUS, OHIO.

Female, white, age 58 years, well nourished and apparently in good health.

Has had all of the common diseases of childhood; six years ago was operated for femoral hernia, otherwise has been in perfect health. until the advent of the present eye trouble.

The right eye is normal.

The left eye has been affected with strabismus since childhood; visual acuity not known, but claimed fair by the patient.



I

February of 1913, eye trouble began by a sharp lancinating pain in the left eye lasting about twenty minutes; during this attack the eye became inflamed, remaining so for several hours.

The second attack came early in March of 1913, lasting about the same length of time and eye became inflamed as in the first attack.

After exposure during the flood of March 24th to April 1st, 1913, the attacks became more frequent, lasting longer and were more severe. After each attack she noticed that while looking directly at a light, rings of different colors appeared about it.

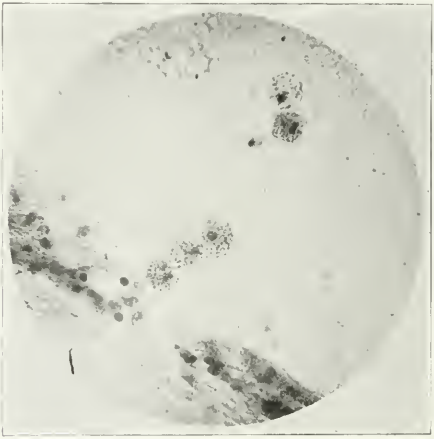
During the ten months following the flood she had five very severe attacks, with a great many lesser ones interposed between the severe ones.

Patient states that there is a perceptible loss of vision after each attack, and that the pain was becoming constant in the eye and over the parietal and temporal regions.

During the attack beginning Feb., 1913, and until she entered the Dayton City Hospital, Nov., 1914, no medical attention had been received.

All that appears in the hospital records of this case is as follows:

Mrs. ——. Entered November, 1914, white, age 58 years, house-wife. Complaining of constant, severe pain in left eye, vision nil, tension high. Ophthalmoscopic examination, cupped disk.



II

Diagnosis, chronic glaucoma. Eye enucleated.

I am indebted to Dr. R. S. Binkley, of Dayton, Ohio, for the specimen, and for the trouble and the time expended in securing this history and the following:

On Feb. 23, 1915, Dr. Binkley examined the patient at her home and reported stump in splendid condition, very little discharge, but complained of constant, severe pain, radiating from the left orbit to the parietal and temporal regions. Can palpate a hard, regular, movable mass deep in the left orbit.

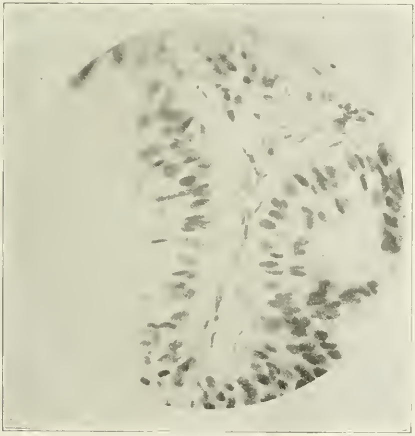
Right eye normal.

On May 27th, 1915, patient again appeared at the hospital complaining of constant, severe pain in the left orbit radiating over the parietal and temporal regions.

On examination of the orbit, a large, irregular, movable mass was found. The next day patient was operated, and the mass removed; it apparently had no attachments to the walls of the orbit as far back as could be palpated, but was attached by a pedicle to the apex of this cavity.

### Photo No. 1. Microscopic Findings.

The cornea appears normal with the exception of an increase in the number of cells in scattered areas in the lacuna of the substantia and the disappearance of the posterior endothelium (Descemet's membrane).



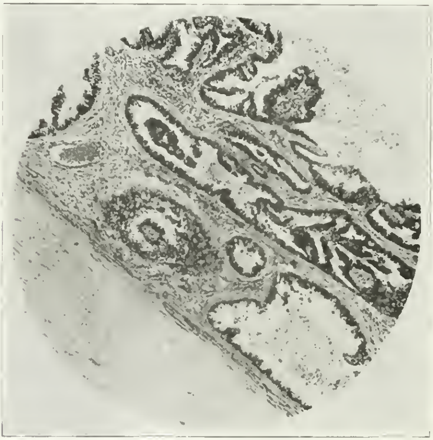
III

The anterior chamber is entirely obliterated and the iris rests on the posterior surface of the cornea. In the posterior chamber, the space between the iris and the lens, many cells are seen, endothelial leucocytes, (large mononuclear leucocytes), lymphocytes and a few red blood cells and polymorphonuclear leucocytes; all of these cells contain fine brown pigment.

The lens capsule is normal. The lens substance shows evidence of much degeneration, the lamina are separated in many places and these spaces are filled with a degenerated granular mass; nowhere are the beautiful nuclei of the lens cells found.

The vitreous is contracted as is always found in specimens that have been hardened in alcohol or formaldehyde; in it are found many endothelial leucocytes, lymphocytes and some red blood cells. The large endothelial leucocytes contain a varying amount of brown and black granules.

The retina is detached and has undergone much degeneration.



IV

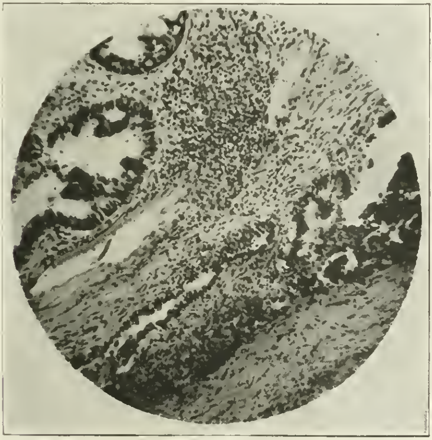
Photo No. 2.

Between the retina and the choroid is an exudate, as seen microphotograph No. 2, containing red blood cells, endothelial leucocytes and lymphocytes; these endothelial leucocytes contain many dark granules, which may be derived from the retinal pigmented layer.

The choroid, as seen in microphotograph No. 1, shows the anterior 7 mm. is normal; posterior to this it gradually becomes thicker and over the papilla it measures 4 mm. in thickness; this thickening of the choroid is caused by an infiltration and new growth of cells that have a characteristic arrangement.

### Photos Nos. 3 and 4.

The cells of this tumor as seen in microphotograph No. 3, are columnar epithelium, of the pseudo stratified type and are supported on connective tissue which is well supplied with blood vessels; their arrangement is distinctly tubular with many cysts and in these cysts are many papillomatous projections of connective tissue all covered by columnar epithelium. This entitles this tumor to the classical name of Pápillary cyst adenoma, which is usually classified under the head of non-malignant tumors.



V

Photo No. 5.

These tumors usually occur in the ovaries, breast, uterus or along the intestinal tract and are never seen as primary growths about the eye or orbit.

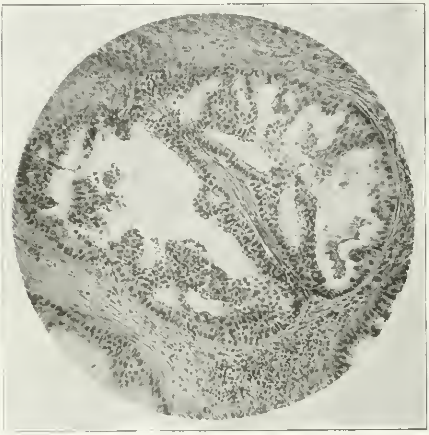
The sclerotic coat is normal, excepting at one place where the tumor has infiltrated this coat, see microphotographs Nos. 1 and 5, and passed to the outer surface where a small round nodule 6 mm. in diameter and 4 mm. high is found; the tissue of this mass has the same general histologic structure as that found in the choroid, as microphotograph No. 6, will show.

### Photos Nos. 6 and 7.

Microphotograph No. 7 shows the structure of the secondary growth that was removed from the orbit May 28, 1915, six months after enucleation. In this mass of tissue the cell type and structure are exactly similar to that of the growth found in the choroid coat of the eye, thus proving it is a recurrence.

There is nothing in the history of this case that will explain the occurrence of such a growth within the walls of the eye, unless the patient's statement of a herniotomy should prove to have been an ovariotomy.

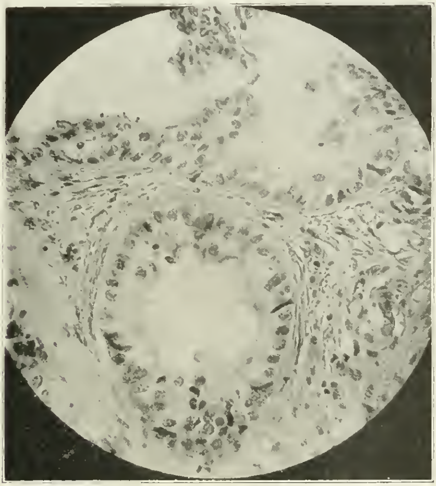
Adenomata are tumors that arise from glandular structures. They tend to reproduce the same type of glandular tissue from which they originate and in some instances reproduce it so closely that on purely histological grounds they cannot be distinguished from the normal gland.



VI

The cells of this tumor, as seen in microphotograph No. 3 are of the pseudo stratified columnar type and are arranged in distinct tubules, with here and there irregular dilatations forming cysts. Extending into these cysts are many papilliform projections covered with the same type of epithelium; in other areas there is a piling up of the epithelial cells and the formation of masses. In one place this new growth has entirely penetrated the sclerotic coat and a tumor mass 4x6 mm. is seen completely outside the eyeball; also a well developed mass is located between the layers of the sclerotic coat.

Adenomata are usually localised, encapsulated, do not give rise to metastasis, or grow by peripheral infiltration. Carcinomata are not localised, are not encapsulated; they grow by peripheral infiltration and give rise to metastasis.



VII

This tumor then is a malignant Papillary Cyst Adenoma, (Papillary Cyst Adeno-Carcinoma). And as stated before, tumors of this type are usually found in the ovaries, breast, and along the intestinal tract and never as a primary growth, at least about the orbit.

Microphotographs by Dr. Carl Hugger, Columbus, Ohio.

## ERRATUM.

In the article entitled Optic Neuritis (Unilateral) Resulting from Tonsillar Infection—Report of a Case, by George Francis Suker, M. D., an error occurred. On the seventh line of page 279 the vision of the right eye is given as 20/60 but should be 20/16. We herewith extend our apology to the author.

# REPORTS OF SOCIETIES

## CHICAGO OPHTHALMOLOGICAL SOCIETY.

PAUL GUILFORD, M. D., PRESIDENT.

APRIL 16, 1917.

### Ocular Disturbances in Pregnancy.

Dr. Burton Chance, of Philadelphia, by invitation, reviewed the subject of disturbance of the sight and disease of the ocular structures arising in the course of pregnancy, and he pointed out how certain are indicative of the gravest danger, either to the life of the woman or portend the destruction of her sight. Such disturbances, he said, might arise from many causes, but the conditions chiefly considered by him were the affections of the retina, choroid and optic nerve arising in the course of the toxemia of pregnancy, wherein there is retinochoroiditis accompanied by exudation and hemorrhage. This form of retinitis must not be considered to be albuminuric in the sense that it is dependent upon the same process which produces an acute nephritis. In this connection, it is well to remember that ordinary chronic nephritis might be present before the first pregnancy, and the further fact, that actual renal retinitis may develop during the course of pregnancy. Undoubtedly, the retinitis depends upon disturbances in the kidneys, but the proximate cause of which is the toxemia which brought about the disturbance. The nephritis is not a true acute inflammation, but rather a fatty degeneration of the tubal epithelium which in favorable cases is replaced by healthy cells. In the less favorable a chronic nephritis may ensue with increased rapidity. The epithelium of the kidneys of the pregnant is sensitive to toxins, and it is this sensitiveness, perhaps, which causes the albuminuria while more pronounced disturbances might cause severe nephritis.

The ophthalmoscopic signs may not differ from those observed accompanying other forms of nephritis. In general terms there is a widespread neuro-retinitis with exudation and hemorrhage. The retinitis is toxic rather than vascular in origin, although endarteritis has been found. In the vast majority of cases, however, the findings are such as to allow us to suppose that the changes throughout the system are of a temporary nature. Few eclamptic cases show evidences of retinitis and the star figures are rarely found.

Acidosis from imperfect hepatic action is commonly associated with the toxemia. Its exact relation is not definitely established, although it is a well known clinical fact that when acidosis is corrected the general symptoms are relieved.

The onset of the symptoms is relatively prolonged; the disturbances of sight may vary from absolute blindness to temporary obscurations direct and peripheral. The prognosis in pregnancy is usually better than in the nonpregnant state, but it depends upon the location of the lesion and whether or not pregnancy can be terminated.

In general, it may be said, that retinal hemorrhages usually indicate a grave toxemia. If the hemorrhages are over the macula, and if the optic nerve is involved, while the symptoms are not heeded, during which time the toxemia becomes increased, a permanent impairment of vision is inevitable.

The prognosis as regards sight in these cases is probably not so good as is commonly thought, though as regards life it is much better than in the nephritis of the nonpregnant. Sight, however, never improves until the pregnancy is terminated. The ophthalmoscopic examination when positive enables one to make an early diagnosis of the underlying condition, which is sometimes by other methods difficult or impossible. Cases which go on to term show the largest proportion of deaths and the greatest damage to sight. Spontaneous premature delivery shows 11 per cent of deaths, while after artificial delivery the mortality is but four per cent.

In conclusion the speaker made a plea for the early examination of the eyes of all pregnant women, with the assurance that such attention should help to reduce the mortalities among them and prevent the development of disease in so vital an organ as the eye.

*DISCUSSION.*

Dr Charles E. Paddock stated that rarely does an obstetrician see a case of blindness, amblyopia, or albuminuric retinitis even in the pre-eclampsia state. He differed with the essayist saying that there are other symptoms before the eye symptom and thought it was only in the neglected cases that the eye symptoms most frequently appeared. Pregnancy has been called a disease of nine months' duration—conditions are constantly arising which lead us to call it a disease—and of course the eye is not immune. The early nausea and vomiting are often accompanied by certain eye symptoms which are disagreeable to the patient but which pass away with cessation of the so-called physiologic state.

Dr. Paddock recalled more than one case in the first six months of pregnancy, where the woman actually had eclampsia and blindness, but she recovered and went to term the sight improving rapidly before delivery.

Pregnancy is undoubtedly the beginning of many serious eye troubles and while it has been overlooked in the first pregnancy, subsequent pregnancies increase the affection. No disease is improved by pregnancy and any woman who has retrogressive eye changes is certainly made worse.

The essayist has said that in acute nephritis, with evidence of injured vision, the pregnancy should be interrupted, depending upon the time of the pregnancy and extent of lesion. Dr. Paddock thought that under such conditions it might be better to empty the uterus regardless of the time of pregnancy. If a few days' treatment of the toxemia did not change the patient's condition there would certainly be no excuse for not making a termination whatever the time in pregnancy. He agreed with Dr. Chance that hysteria is quite prevalent but he had seen only a few cases of hysteric amblyopia in pregnancy and in these cases the clinical findings are constant and easily diagnosed. We must always remember never to accept the hysterical diagnosis unless we have entirely cleared up all other conditions.

Dr. W. A. Newman Dorland believed that advanced eye symptoms could be very frequently eliminated if the cases are kept under careful observation. The early examination of the urine, not only for albuminuria, but for a lessened urinary toxicity, is very helpful. The axiom, lessened urinary toxicity means increased hemic toxicity, must be borne in mind. That means a rise in the blood pressure, and this starts just as soon as the so-called kidney of pregnancy begins. The kidney is not the seat of a nephritis, but it is a starved kidney, the cells failing to act, not because they are overworked, but because they are not getting enough blood to work upon. The renal cells are deprived of their blood by arteriole contraction and fail to functionate. The primary action of the toxins in the blood is an almost instantaneous arteriole contraction. This can be proved by administering to any of these patients who are showing a lessened excretion of urine—before there are any eye symptoms—a vasomotor dilator, such as the fluid extract of veratrum viride, and these renal cells which have not been functionating will, within three to four hours, throw off two or three quarts of urine. An overworked kidney could not do that. The eye symptoms, therefore, result from an accumulation of the toxins in the blood and these can be eliminated by carefully watching the condition of the urine from the very start of pregnancy.

Dr. George F. Suker differed in his opinion in regard to some of the statements made by Dr. Chance. In the Cook County Hospital there had not been a single case of extra-ocular complication in pregnancy in the last three years. There had been a good many cases of intra-ocular complications, particularly in the later stages in those women who had an increased blood pressure and more or less diminished excretion of urine, although not typically a retention. Several such cases have occurred in the last year, one in particular, with an albuminuric retinitis, the woman becoming absolutely blind within 12 hours after the onset. She was aborted within a few hours after the definite recognition of the condition and, within 72 hours, had regained practically her normal vision. In this instance the condition was not associated with any hemorrhages but simply an edematous nerve head which amounted to almost a choked disc. That was the only case with an intra-ocular complication in a series of over 2100 cases. Yet, in loooking over further statistics and going further back he did maintain that every pregnant woman in whom an albuminuric retinitis appears must be aborted, irrespective of the stage of pregnancy; because, if this is allowed to go on beyond four or five days or a week, irreparable damage will have been accomplished in the retina and blindness will result or a diminished visual acuity. Subsequent pregnancies play no part as to the causation. Each case is a law unto itself and the woman who has such a complication at one time may never have another.

In the large percentage of pregnancies an ophthalmic examination in the seventh or eighth month will show more or less enlargement or fullness of the veins. Not a few have a moderate retro-bulbar neuritis and this is necessarily an evanescent type and is probably often mistaken for an amblyopia of central origin or of the uremic type. These cases can be cared for without the termination of pregnancy.

In speaking of amblyopia several things must be remembered: first, is it a retro-bulbar neuritis type or a central blindness. If the latter the patient should certainly be delivered; if it is a toxic amblyopia this is not necessary.

The conical cornea occurs only as the result of repeated pregnancies, due to the devitalization which ensues. Dr. Suker believed repeated ophthalmoscopic examinations should be made in every pregnant woman.

Dr. Alonzo C. Tenney believed the cases requiring emergency treatment could be narrowed into a very few classes: the gradually developing albuminuric retinitis, the rapidly developing or acute retinitis, the retinitis which is associated with a systemic disease, such as syphilis, and the keratitis associated with the tubercular diathesis or the edematous diathesis. In his experience the indications have been about as follows, speaking from the standpoint of the general consulting practitioner; the gradually developing retinitis may be controlled if caught early.

The appearance of albumen in the urine with a decreased urea and an increased amonia ratio should indicate strict dieting with free elimination. These cases will almost invariably respond to treatment. The *acutely* developing cases, in patients who only a week or few days prior to this gave a negative urinary examination, require immediate emptying of the uterus. The cases which develop with systemic disease, which seem to be in some instances much more active when the patient's vitality is lowered, should never reach a critical stage if observed intelligently. By watching the urine (the decreasing urea coincident with the appearance of albumin in nephritis; the appearance of diacetic acid, acetone and creatinine in diabetes; and the discovery of lucine in cases with hepatic insufficiency), the warning may be obtained early enough to use dietetic and medicinal treatment, with a fair prospect of saving the mother's sight and the child's life.

Dr. Francis Lane said the pathological side of these cases was that the retina and choroid are thickened and soaked with a fluid exudate which is rich in fibrin. There is proliferation of the endothelial cells of the arteries with a thickening of the blood vessel walls.

Dr. Chance, in closing, said he was not connected with any large charitable general hospitals. His observations had been drawn from consultations with general practitioners, who had sent to him patients from what might be called the self-supporting class. Such practitioners were not so well equipped perhaps, for making the studies and early diagnoses as the obstetric experts here tonight. It was to draw the attention of the general practitioner to the gravity of the complications of pregnancy, as seen by the ophthalmologist, that he gave the survey of what has been reported as happening during pregnancy. He himself had not seen a case of meratoconus arising in the course of pregnancy in a primipara, although such cases have been reported. In his paper, he devoted his attention to the conditions associated with toxemia. He had seen a number of cases where there had been vague symptoms, long before there was any necessity, in the minds of the men who had charge, for examining the urine. The primipara may not have the classical symptoms with vomiting in pregnancy. He urged that vague symptoms should always be considered; those which occur, perhaps, without vomiting. She may have headaches, but these the family physician puts aside as part of the derangement of economy. Such patients may come to the ophthalmologist later to have glasses fitted; then it is that lesions in the optic nerve and chroid are discovered. It is those cases who should have had early attention.

### A Brief Report of Twenty-nine Cases of Mongolian Idiocy, With Special Reference to the Etiology From the Standpoint of the Clinical History, With Presentation of Three Cases.

Dr. Mary E. Pogue stated that some authorities give from three to five per cent and others as high as ten per cent of the mentally deficient as belonging to this class. This defective mental development is the outcome of a brain made physically inferior. It had never been her privilege to know a Mongolian whose mental age tested by the Binet Intelligence Tests above the eighth or ninth year. As a class they are cheerful and pleasant to live with. They are highly imitative and each author who writes upon this subject speaks of their musical tendency. They have characteristic swaying movements, and Dr. Pogue believed Bianchi is right in teaching us to think of such symptoms in relation with epilepsy. Mongolians are born optimists; they have funny little traits and characteristics. The effective element of consciousness is above the content.

She reviewed the physical characteristics of Mongolians and, in discussing the rarity of Mongolism in children of Jewish parentage, stated that it was interesting but of no special significance.

Commenting upon the relation of syphilis to Mongolism the author stated that she did not wish to be understood as not holding syphilis responsible and alone responsible for some cases of Mongolian idiocy. None of her patients gave a positive Wassermann reaction. If a specific infection is back of this, then the brunt of it may be borne by the endocrin glands. Chemical attractions may exist between a certain strain and the endocrin glands.

Dr. Pogue gave a brief review of the clinical history of four children with Mongolism and stated that she thought Mongolism is much more frequent than has formerly been believed. She believed certain mental symptoms occurring in the pregnancy of one of the mothers was due to her harboring a Mongolian. One of her twenty-nine cases of Mongolism married and twice conceived. She carried the first child four or five months and with the second came to term. The child was not a Mongolian.

As to grandular feeding, a circular letter was sent to a number of the foremost institutions in the country asking their results. In not one instance did they speak of having received the slightest benefit from it. However, Dr. Pogue felt strongly that it is of some benefit. Glandular feeding increases the stature in many instances, alters the nutrition of the hair and is of inestimable value in overcoming the digestive disturbances. She suggested that the extract of thymus gland be given almost at birth as a nutritional aid; after the third or fourth year's thyroid, and about the tenth or twelfth year's pineal gland.

Dr. Pogue likes to call this condition a psychosis and feels that it is not a problem that we can hope for education to answer. It is a research problem in medicine. We have been at the educational side long enough to know its limitations and to frankly state them.

Our knowledge of the ductless glands is most imperfect, but enough light has dawned so that we now know that various ones of them are more active at different periods of life. If Mongolism is brought about by a pluriglandular insufficiency in a mother, whether or not the insufficiency of these glands was caused by some chronic infection, glandular feeding would probably help her.

**Eye Signs and Symptoms of Mongolian Idiocy.**

By Dr. Casey A. Wood. (See May Ophthalmic Record for Original Article.)

*DISCUSSION.*

Dr. Archibald Church said the first thing that forced itself on the attention in the consideration of Mongolian idiots was their striking similarity. After seeing a few cases it is almost impossible to mistake one for anything else. Vogt has said that parents coming to visit their children if presented with half a dozen cases are unable to recognize their own offspring. Whatever is the cause of Mongolian idiocy, it is uniform and definite, because the results are parallel.

Clinically they all have short, broad heads, a low bridge of the nose and the nostrils are flaring. The tongue is rugose. The fontanelle almost always closes early, the stature is below par, and the condition of the bones is peculiar. In one extremity you may find the changes that suggest giantism next to a bone in which ossification is retarded. The hands are spade-shaped and the terminal phalanges stubby with short broad nails. The tendons and ligaments are always relaxed and the fingers can be put back on the dorsal surface of the hand without producing any inconvenience. Cleft palate, extrophy of bladder, hernias, hypospadia, and crypt-orchidism are common. These children are defective, unfinished products, the genital development is backward and sexual differentiation incomplete. The case reported by Dr. Pogue where the girl married and had children is unusual.

They nearly all die before reaching middle age and very often of tuberculosis, which means nothing as to causation. As to syphilis, Dr. Church had tested a number of cases serologically in recent years and they had all been negative. X-ray pictures of two cases showed that the sella turcica was not enlarged and there was no indication of any pituitary disease, nor disturbance of the pineal gland. Pineal gland feeding has been used to stimulate growth in these cases, at first with apparent advantage, but the latest view is that the pineal is not glandular and that it has no effect on stimulating growth either in adolescence or infancy. Thyroid has also been tried in many cases without noticeable effect. Usually the skin is velvety or infantile, but has not the rubberoid condition found in myxedema. The mental condition is entirely different. These patients are bright and affectionate; they have powers of appreciation and pleasurable emotion; they enjoy the attention that is lavished upon them and suffer if neglected. As to whether the sex glands are at fault or some of the other glands of internal secretion, is as yet undetermined but probable.

Anatomically, more defects of the heart are found than of any other organ; persistent ductus arteriosus and lateral openings between the ventricles and auricles are common. Many of them are "blue babies." Their tissues are of low survival value and do not resist infection well. The tendency to cataract is perhaps an expression of the same inherent defect.

Dr. Church believed this disease was not a race condition, or due to syphilis, or tuberculosis, or alcoholism on the part of the parents, and that when we know the cause of disease of the endocrin glands we will know the cause of Mongolian idiocy.

Dr. Burton Chance asked if Dr. Pogue had noticed disease of the cornea in this class of patients; and he mentioned that he had seen within the year, five or six such patients, none of whom had been in institutions. One boy had had a persistent keratitis and also the inflammation of the lids of which Dr. Wood spoke. A girl has been under his observation for probably 15 years; she was supposed to be nine years of age when she was first brought, and is now declared to be only 14, for nobody knows how old she is. She had had a definite keratitis; and, the Wassermann reaction was positive. She did not do well under mercurial treatment; but when she was given thyroid, her general health improved, although she did not grow taller. Menstruation occurred at about the time she was believed to be 14; very scantily and irregularly, the patient sometimes going for a year without a period. He thought it strange that observers have found so few congenital structural defects in the eyes of the idiotic.

Dr. Casey A. Wood asked if Dr. Pogue had noticed that the Mongolian idiot was dirty in his habits—whether they were apt to rub dirt into the eyes or put their dirty fingers up in their eyes?

Dr. Pogue, in answer to Dr. Wood, said that Mongolians were not dirty in their habits, but cleanly; the condition of the eyelids being due to a defective development of the skin and its appendages. She had never had a case who rubbed their eyelids or eyebrows. In institutions' practice they always had institutional keratitis, but in private practice she had never had it.

The average Binet age is between two and five years and sex manifestations of any degree could not be expected. She agreed with Dr. Church that when we know more about the endocrin glands we will know more about this disease, but she doubted if one and the same condition could ever be held responsible for it. In one case she had had X-rayed there was an evident enlargement of the pineal gland and in another there was enlargement of the thymus.

MAJOR H. WORTHINGTON,
Secretary-Treasurer.

## OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

### ANNUAL CONGRESS.

The Annual Congress of this Society was held on May 3rd, 4th and 5th, in London, under the presidency of Mr. E. TREACHER COLLINS, F. R. C. S. The proceedings consisted of eighteen papers, with discussions thereon. Twenty-three cases at the Royal London Ophthalmic Hospital, discussions on "Employment of the Blind," and "Concussion Injuries of the Visuat Apparatus," also demonstrations in a museum annex of speci mens of ophthalmoscopes, from the historic standpoint, and interesting specimens and sections.

The President, in the course of his introductory address, said this was the second occasion in the Society's thirty-seven years of existence that it had to mourn the death of its acting president. Those who were present at last year's gathering would vividly remember Mr. Walter Jessop's genial personality, which permeated the whole proceedings, and his removal would be keenly felt by the members. Up to within a week of his death, Mr. Jessop was engaged in promoting the success of the Journal which he had called into existence, and likewise the scheme for affiliating with the parent society other Ophthalmological bodies in the Kingdom, which members would be asked to ratify at the business meeting of this Congress. Throughout his long connection with the Society, Mr. Jessop's one aim was to promote its interests and enhance its reputation as a scientific body. The council had already forwarded to Mrs. Jessop, and that lady had gracefully acknowledged, a resolution of sympathy in her bereavement.

Passing to other subjects, he said this was the third session in which the society had met while the country had been at war. If, in some future generation, an ophthalmologist wished to see what part his forerunners played at this important epoch in the world's history. he would find it fairly reflected in the transactions of the society, for now, as at the two previous congresses, he would find that the predominating topics for debate were connected with injuries arising during warfare. The longer the war continued, the more did it become evident that the skill of the ophthalmic surgeon was a great essential, and followers of that specialty were now being largely availed of at the various fronts.

The scientific part of the address was devoted to the subject: **"The Sequelæ of Hypotony."** The summary of his conclusions on the subject is as follows: (1) That hypotony may occur in connection with several different affections of the eye, and that the sequelæ to which it gives rise may be considered apart from the affection causing it. (2) That the sequelæ of hypotony vary in different cases, according to the chamber—the aqueous or the vitreous—in which the pressure is most reduced, and according to its degree, duration, and the rapidity of its onset. (3) That these sequelæ may be classified as follows:

(1) Those due to relaxation of tissues usually kept taut: (a) wrinkling of the anterior elastic lamina of the cornea, producing superficial double-contoured lines: (b) wrinkling of the posterior elastic lamina of the cornea and layers of the substantia propria immediately adjacent to it, producing seated striated opacities: (c) thickening of the sclerotic and the production of puckers in it behind the insertions of the recti muscles: (d) wrinkling of the elastic lamina of the choroid and heaping up of the pigment epithelium on its inner surface, where the folds are deep: (e) displacement forwards of the lens and slackening of its suspensory ligament, both of which tend to increase the refraction of the eye.

(2) Those due to the production of relatively higher blood pressue compared to intra-ocular pressure than exists under normal conditions. (a) In the choroidal veins the normal excretion of lymph through them is arrested, and, instead, an exudation of lymph takes place, giving rise to detachment of ciliary body and choroid. (b) In the veins of the iris, the normal excretion of the aqueous humour through them is arrested, and, instead, an exudation of lymph into the anterior chamber takes place. This exudation alters the normal consistency of the aqueous by increasing its percentage of proteids, and rendering it spontaneously coagulable. (c) In the capillary vessels of the ciliary body, the secreting function of that struc-

ture is quickened, and an exudation of lymph takes place, the albuminous constituents of which, in a rabbit's eye, being unable to permeate the epithelial lining of the part, raises it up in the form of vesicles. (d) In the capillary vessels of the choroid the normal exudation of lymph is stimulated, which, if it permeates the pigment epithelium, may collect beneath the retina, causing detachment of that membrance. (e) In the retinal vessels of the optic disc the normal excretion of fluid from the vitreous is arrested, and an exudation of lymph into the head of the optic nerve takes place, giving rise to the appearances of choked disc.

*DISCUSSION.*

Sir Anderson Critchett, Bart, spoke of the address in terms of high eulogy, and referred with much satisfaction to Mr. Collins' work as a great pathologist. He concluded by an allusion to the fact that the great war had led scientific men, including ophthalmologists, to rely more on their own resources, the result of which could not be other than satisfactory.

Lieutenant-Colonel Elliot said that hypotony might exist for many months in those who had had sclero-corneal trephining performed, without any evidence of disability. Because cataract was found to follow glaucoma operations, it did not follow that the cataract was the result of the hypotony, or even of the operation. Other conditions besides a direct wound of the lens during operation might determine the formation of cataract; he questioned whether the operative procedure ever caused opacities of the lens. The problem of the eye, from the physical side, must be approached as one of hydrodynamics, not one of hydrostatics. The manometer was far too coarse to give reliable indications of minute differences of pressure, such as exist in the various chambers of the eye. The suggestion as to the transudation of serum into the anterior chamber from the surface of the iris, he regarded as most helpful, as it meant the posterior chamber would remain free of the pathologic exudate. He agreed that the tendency towards myopia after trephining was only transitory: he had seen as much as 2½ diopters of myopia within a fornight of the procedure. As the flap consolidated, the chamber deepened, the lens system receded, and the myopia disappeared.

Mr. Herbert Parsons thanked the president specially for having insisted on the importance of minus tension; most of the literature in the past dwelt on increased tension in the eye.

He did not agree with Colonel Elliot as to the slight results of continued low tension, the results, in his view, though more delayed, were as bad as those of increased tension.

Dr. Hill Griffith (of Manchester) read a paper entitled, **"Transmitted Glioma of the Retina."** The author gave a series of interesting family records bearing out his thesis, and raised the question whether the subjects of this condition generally showed a tendency to develop malignant tumors elsewhere.

*DISCUSSION.*

The president remarked that at the Royal London Ophthalmic Hospital the condition of 135 cases of glioma had been followed up, but there were no records of a second member of a family having been affected by it. A reason why so few cases of inherited glioma were seen, he suggested, was that so few subjects of the condition reached child-bearing age: they usually succumbed earlier to malignant disease.

Captain Cruise mentioned a family in which three children had the same condition.

Mr. W. H. McMullen, who had charge of an interesting annex containing specimens and a series of ophthalmoscopes of historic interest, read a paper on the ophthalmoscope.

Captain W. Wallace discussed, in considerable detail, the effects on recruiting of the standards of vision set up by the Army Authorities, in a paper entitled **"Conditions affecting the Standard of Vision in an Army."** The paper was supplemented by a number of statistics, and was discussed by several Army Medical Officers. (A synopsis is, perhaps, better omitted. H. D.)

Captain R. R. Cruise gave a contribution on "Protection of the Eyes in Warfare." He said it was his hope that the measure of protection against injuries to the head afforded by the steel helmet would find a parallel, in the case of the eye, in the visor which he designed, and now exhibited, and which had been accepted and adopted by the war office, in consequence of which it was now receiving an extensive trial. From the standpoint of protection, the injuries were divisable into two classes: preventable, and non-preventable. The first category included cases in which a small shell splinter penetrated the globe, while an instance of the second class of injury was that in which a missile penetrated both orbits. Some cases it was difficult to place into either category. Among the definitely preventable, however, were cases in which the cornea was incised, the iris prolapsed, and a septic panophthalmitis ensued, the foreign body having had sufficient energy to penetrate the globe, but not to traverse it completely. In the same class could be placed contusions of the globe, causing dislocated lens, traumatic cataract, irido-dialysis, intraocular haemorrhage, and retinal lesions. His war experience produced comparatively few cases of detachment of retina. In a series of 488 cases of eye injuries caused by shell, bomb or grenade, collected by Morax and Moreau, of Paris, 54 per cent were estimated to have been caused by small particles, and it was probable that half of the cases of eye injury could be avoided by the use of a gauze shield. A large series collected by Captain Cruise himself, gave 58 per cent as preventable injuries. He demonstrated the visor. It consists of a transparent mesh of steel rings, so closely linked together that only the most minute particles could pass through its meshes, and then only if the impact is at right angles to the visor. The visor is attached to the helmet in such a manner that it can be readily drawn to one side, or thrown on to the cap when not in use, and as easily readjusted into position for protection. The links were chemically treated to render them rust-proof. This visor had the advantage over goggles—of which several forms had been designed, that no obscuring layer of moisture was formed by the perspiration, and a bullet or fragment striking it would not project radiating particles into the eye and inflict injury in that way.

Several speeches of commendation were made, and in the end the following resolution was unanimously passed:

"The Ophthalmological Society of the United Kingdom, having examined the steel visor designed by Captain Cruise, has every reason for believing that it would prevent at least 50 per cent of the eye injuries received in warfare. The visor has received the strong approval of ophthalmic surgeons in the field and at home. The society begs respectfully to urge that its production should be expedited, and that its application and method of use should be placed under the supervision and control of a competent authority."

Captain Cruise, in reply, detailed the results of experiments he had carried out in firing at ox eyes, with their subjacent fat, under various conditions, with and without the visor.

Mr. J. Gray Clegg read a paper on **"Sclero-corneal Trephining for Hypertension, with results in some 250 cases."**

Mr. Leslie Buchanan read notes of an unusual case of opaque nerve fibres. These opaque nerve fibres were on the outer side of the retina.

The President and Mr. M. S. Mayou thought it was a case of the outer pigment layer taking on the characters of the inner layer.

## EMPLOYMENT OF THE BLIND

The afternoon session of the first day was devoted to a most instructive, though pathetic, visit to the large Hostel for officers and soldiers blinded in the war, in Regent's Park, which owes its origin and growth to the strenuous efforts of Sir Arthur Pearson, himself a victim of the great affliction, and after a careful inspection of the various handcrafts and other occupations being taught, including poultry-farming and short-hand and typewriting, Sir Arthur opened a debate on employment of blind persons. The chair was occupied by the President.

Sir Arthur Pearson said the Hostel had set a new pace in the blind world. This was shown by a communication he had a few months ago from another institution for the blind, asking for an interview, as there must be something peculiar about the methods pursued, seeing that in a few months men could be turned out proficient in typewriting and other accomplishments, whereas the usual time required had been four to five years. At the interview, he insisted on encouraging the afflicted men to banish from their minds, as far as possible, all morbid reflections on their condition. It not only gave them greater happiness, but greatly facilitated that mental concentration which was as essential to fitting them to earn their livelihood in an independent manner. The employment of blind pupil teachers, owing to their bringing to bear the point of view of a common handicap, was also of immense assistance. In other cases, it was quite understandable that the blind pupil would meet the instructions imparted with the reflection, if not the remark, "What do you know about it?" The actual time of study was limited to five hours daily, in two portions, before and after the mid-day meal. The remainder of the day was passed in sport or recreations of other kinds. In short, the men here learned to live as blind men. As masseurs the men turned out of the institution excelled: they passed the searching examination entitling them to the certificate of the Incorporated Society of Masseurs, and most gratifying letters had been received from institutions where they were employed. The sense of proximity to obstacles was highly cultivated by blind people.

This sense he regarded as consisting of three factors: echo, difference of air pressure, differences of temperature. The first of these was absent in a carpeted room, and the third was only slightly operative, but in the open, all were important. A stone wall was colder than a paling, the latter having the temperature of the surrounding air. A high solid obstacle was evident to the blind man on approaching it for a greater distance than if it were only a foot or two high. The abiding danger to blind persons was doors left open, and strict injunctions were issued on this point. In ordinary walking, if the erect posture were maintained, the obstacle was first struck with the foot, hence this was the safe posture.

Mr. Arnold Lawson, who has been a colleague of Sir. Arthur Pearson in this work, discussed the subject in various aspects. He said that the crowd of young men whom the war had thrown on to the care of those who cared for the blind raised the subject to one of national importance. Sir Arthur Pearson's brilliant initiative had aimed at centralization of effort: previously there had been much overlapping. Here all aspects were fostered and encouraged—the moral, the social, and the economic. The blind man, mostly young, had come to be trained. No time limit was set for this, but the man stayed until that object was accomplished; hence he went forth an active and economically independent citizen. The important After-Care department of the Hostel followed up and looked after the blinded man when he sought his place in society. If, in a blinded man's work, mistakes crept in, these, not being perceived, passed uncorrected, and the wrong method became a habit, unless there were persons to set him right. He needed protection when buying materials, and against unscrupulous persons, where there were those mean enough to take advantage of his affliction.

Mr. Lawson proceeded to deal with the marital side of the question, advocating marriage to a suitable partner, for the blinded man needed, in a peculiar degree, those attentions in the matter of dress and encouragement which marriage should give. Though brought into being by the war, Mr. Lawson considered that the methods and training of this Hostel would in the future prove a great agency in the case of people blinded in civil occupations.

Mr. Harold Grimsdale discussed the topic from his extensive experience in connection with the Normal College for the

Blind. The handicap of blindness was, he said, at its greatest in the case of a craftsman. The brain of the professional man still retained its vigor, and the memory was of necessity improved. This was well illustrated in the person of Sir Arthur Pearson himself, whose memory was remarkable. No one employment was good for all blinded persons. To teach these afflicted people to take their places in the world was to enable them to forget, to a large extent, their great infirmity, and it was wrong to neglect to use a good brain. In England there were probably 120 blind teachers, and teaching seemed to open up a good calling for them. About 85 per cent of the blinded men who came to the Normal College had been taught to be self-supporting. He concluded by giving a very interesting account of the results achieved.

Captain A. W. Ormond said that in 1911 there were 45,000 persons in the United Kingdom who could be classed as blind, and he thought it would be a good thing if at this Hostel women could be trained to run clubs for a few blind men each: these would be homes for young blind unmarried men. Before a person was classed as blind, he or she should be so certified by a competent ophthalmic surgeon. He thought every effort should be made to render the blinded heroes from the war as presentable as surgery could make possible. The advantage of that in the man's prospects should be put to him, and he should be encouraged to submit to the fatigue of the necessary operative procedures. However able a man might be, if he were repulsive to look upon his chances would be much reduced.

Captain Cruise strongly commended the last point made by Captain Ormond. A cordial vote of thanks was passed to Sir Arthur Pearson.

Sir Arthur Pearson, in his reply, said that for the purposes of training, total absence of sight was much better than slight perception. He expressed eloquently his gratitude to members of the profession, singling out for special mention Mr. Arnold Lawson and Captain Ormond.

Friday morning was given up to witnessing operations at various Metropolitan ophthalmic hospitals, and the afternoon to a clinical meeting at the Royal London Ophthalmic Hospital, at which 23 cases were exhibited and discussed.

The "Bowman Lecture" was delivered by Sir George Berry, M. B., LL. D., on the subject **"Colour-sense Phenomena and Some Inferences Which They Seem to Suggest."**

In the evening, the first two papers dealt with Leber's Disease (hereditary optic atrophy), and they were given by Mr. Inglis Pollock (of Glasgow) and Mr. J. Herbert Fisher (of London), the last named being a continuation of the thesis advanced by Mr. Fisher at the last Congress. Series of skiagrams were exhibited by the agency of the epidiascope to show abnormal appearances in the region of the sella tursica.

Dr. G. Mackay (Edinburgh) contributed a paper on "A Case of Uveo-parotitis with Irido-cycloplegia."

Mr. Claud Worth read a paper on "Advancement Operations," which was discussed in detail.

The following papers were also read:

Mr. Arnold Lawson: "A Case of Detachment of the Retina at the Ora Serrata."

Mr. Ernest Clarke: "Ophthalmometry in Estimating the Refraction of the Eye."

Mr. Leslie Paton: "Functional Spasm of Accommodation."

Lieut.-Colonel R. H. Elliot: "Operation of 'Couching' of Cataract, as performed in India: Its History, Its Technique, and Its Exponents."

Mr. J. Herbert Parsons: "The Apocritic Principle and Visual Sensations."

**Discussion on Concussion Injuries to the Visual Apparatus.**

The closing sitting of the Congress was devoted to this subject. Captain A. W. Ormond, in introducing the debate, concentrated his attention on contusio bulbi, and drew upon his experiences at a large Metropolitan Military Hospital, and at St. Dunstan's Hostel. Though the dictionary definition of a concussion was a condition induced by more or less violent shaking of some particular organ whereby serious symptoms might be produced, to account for which no *definite* lesion could be detected, yet the concussion due to modern explosives might lead to very definite lesions. Violence transmitted through the bones of the skull was able to reach the inner tunics of the eye. Blows on the sides of the orbit could be transmitted through the sclerotic, and produce serious concussion of the retina or choroid. That part of the eyeball unprotected by bone might be influenced by air vibrations. Many cases of serious damage to the globe had been recorded as due to "windage," i e., air concussion in which no solid particles appeared to have struck the eye or face. Vibrations lacking the force to disintegrate the dense sclerotic might yet suffice to rupture the less firmly knit choroid and retina. In some of these cases the globe was quite disorganized. The author said that concussion or contusion effects could be produced in four different ways: (1) By vibrations, the result of metal or other particles traversing the orbits; (2) by vibrations, the result of blows on the bones of the orbit and face transmitted to the interior of the eyes; (3) by vibration transmitted to the deeper parts of the globe through the corneoscleral tunic without rupture of the eyeball; (4) by vibrations, the result of windage. He proceeded to deal with the incidence of injury on the various structures of the visual apparatus, and gave succinct histories of a large number of cases which had come within his experience, to support his conclusions.

With regard to treatment, he had great faith in the hot coil, an electric current passed through a pad of lint or a bandage, believing that as an assuager of pain it has no equal. He considered that mechanical means were best for hastening the absorption of vitreous or retinal haemorrhage. He had not hesitated to deal with complete traumatic cataracts as soon as the eye had recovered from the immediate effects of the traumatism. The only case in which he had cause to regret having done so was one in which a fragment of wood was present in the ciliary body, in consequence of which a septic irido-cyclitis followed, resulting in a shrunken fluid eye. In treating wounds which involved the air cavities flanking the orbits, free drainage was necessary. Frequent hot fomentation was the best dressing for wounds about the orbit: it should be frequently renewed, as these wounds were almost invariably septic.

Dr. S. A. Kinnear Wilson (London) dealt with the subject from the cerebral standpoint. He said the whole question of commotio was still shrouded in considerable obscurity, looseness of conception being responsible for some degree of clinical confusion. In some cases of the condition which had proved fatal, minute investigation did not reveal a recognisable anatomical lesion. In most instances of severe blow on the head there were capillary haemorrhages, minute lacerations of the cortical substance, and consequent disintegration of myelin. The blow had caused a sudden dispersion of cerebro-spinal fluid, and this tended to escape too abruptly by the natural exits. Even severe symptoms, however, might be completely recovered from. Oppenheim holds that the basis of "shock" is cerebral commotio. Fickler believes that the conception of concussion of the spinal cord, of purely molecular origin, is not admissible.

The experiments of Alan Newton showed there was an organic basis for those transient disturbances of function seen in so-called "railway spine," and like conditions. A feeble impact could produce a surprising amount of tissue change. The tremendous speed of projectiles in warfare rendered pure commotio almost impossible, therefore cases of pure visual concussion seen in the war had been but few—he did not include cases in which there had been a shell explosion in the man's near vicinity. The case which, in his experience, had approached nearest to pure commotio was that of a young soldier, aged 19, who was struck on the back of the head by a shell fragment while lighting a fire in his dug-out. His three minute spell of unconsciousness was terminated by his friend moving an arm which had also been struck and was painful. He felt sick, and was quite blind in both eyes for 48 hours. On the third day he saw dimly with each eye. There was no dysmetropsia. Two small pieces of bone were removed from the orbit. The shadowy objects which he saw at first had no colour, and shutting the eyes did not always banish the image. At the end of a fortnight these subjective phenomena had disappeared. Two months later, the pupillary reaction and optic discs were normal, vision 6/60 in both eyes, Jaeger 14 in both. There was a concentric diminution of both fields for white and colours, and the visual fatigue was marked. Skiagraphy revealed that the outer table was splintered, and the inner one cracked. It was not traumatic hysteria. Except for the visual symptoms, there was no impairment of function of the nervous system. Visual impairment after generalised commotio cerebri was, in Dr. Wilson's opinion, far more rare than labyrinthine or other auditory impairment.

The President communicated a paper on sub-choroidal haemorrhages from concussion, and their relation to commotic retinae, holes at the macula, pigmentation of the retina, and pigmentary disturbance at the macula.

Captain Cruise was not satisfied that "windage" was answerable for all that had been attributed to it in eye injury during the war, and he counselled great care in accepting the statements of the patients themselves, who, seen some time after the occurrence, were apt to fill up from an imperfect memory, incidents which seemed lacking from a complete narrative. He had seen only quite a small proportion of detachments of retina in the eye cases coming from the front, certainly not more than 10 per cent. It might be attributable to the high-velocity projectile tearing the retina and there being subsequent adhesion between the layers. More cases might be seen in the future as the result of shrinking of bands.

Sir George Berry (Edinburgh) discussed the President's observations, and said he agreed with Captain Ormond's observation that where there had been permanent hemianopic symptoms there was some degree of blindness to begin with.

Mr. A. L. Whitehead (Leeds) described the appearances in a beautiful case of ruptured retina from the war. There was no injury to the fundus, except exactly at the macular region. He saw a minute oval puncture through the retina, just such an one as a surgeon might make, and it caused serious interference with vision. He agreed as to the rarity in military cases of uncomplicated detachment of retina. In some cases of superficial eye injury he had noted a peculiar pigmentary migration, not like that seen after haemorrhage. There were mostly shell-shock cases, some of them supposed to be due to "windage." In some instances of slight injury, also, there was what seemed to be a transient myopia. These seemed to be partly functional.

Dr. G. Mackay (Edinburgh) referred to cases of traumatic myopia. In the cases of it he had seen, the refraction seemed to have been temporarily altered in marked degree as a result of the blow. Probably the rigid condition of the ciliary body interfered for the time with accommodation. There was no profound collapse.

Mr. Harrison Butler (Coventry) said he was not impressed by windage as a cause of injury. In a series of war cases he was interested in collecting, there were very few which could be included in that category.

Mr. Cridland referred to the onset of symptoms of contusion following slight glancing blows on the eye after a period of 48 hours, the signs being very fine striations in the peri-macular zone. In more serious cases the amount of exudate prevented striation.

The President said he thought that in some cases injury to the lens might start separation of the segments of the lens, so that fluid collected between them, and so irregularities in refraction might ensue. Rupture of the lens generally took place at the equator.

Captain Ormond replied in detail on all the points raised.

Members dined together on the evening of the first day, and, altogether, the Congress can be voted a definite success.

## ILLINOIS SOCIETY FOR THE PREVENTION OF BLINDNESS

*Note.* It was planned to hold another meeting of the Advisory Council before its members dispersed for the summer. In view of the fact, however, that most of those interested in the Prevention of Blindness are so deeply concerned with Red Cross work, it has been deemed wise to omit the proposed meeting, and to acquaint the members of the Advisory Council with the Society's activities by means of the following brief statement.

### Educational.

*Publications.* The Society has just issued its second educational leaflet "Suggestions for Safeguarding the Eyes of School Children," a six page illustrated folder which is designed to impress not only school children, but their parents with the importance of caring for the eyes during the school years.

The Illinois State Board of Health has reprinted as an official publication, this Society's First Educational Leaflet, which gives directions for safeguarding infants' eye sight. This leaflet is printed in six languages, and will be used by the state in its educational work throughout the state. A total of 5,350 copies of publication No. 1 has been distributed since March 16th, as follows: English, 2,850; Polish, 600; Yiddish, 625; Italian, 525; Bohemian, 350; Lithuanian, 400; and copies of the First Report.

The Society is informed by the Secretary of the State Board of Health that the Board purposes publishing the rules and regulations governing the practice of midwifery which were prepared by Dr. Cary and the Secretary of this Society. A copy of these rules when published will be given to each midwife when she is given her license, and as their provisions limit the work of these women to nursing, care and attendance upon normal cases, it is felt that their adoption will assist in securing better care for mothers and babies attended by midwives, and particularly better care for babies' eyes. The preparation of these rules was authorized at the joint conference of the Committee on Prevention of Blindness of the Chicago Woman's Club, and the Committee on Midwives of this Society, held March 1, 1917, and which has been previously reported upon.

*Exhibits.* The State Department of Health has also reproduced the Society's poster exhibit on Prevention of Blindness from Babies' Sore Eyes, consisting of seven colored panels 30 by 40 inches each. These panels now form a part of the exhibit used by the Board of Health in its educational campaign.

Four of these panels have been copied and sold to the Children's Memorial Hospital to hang in the waiting room of the out-patient department.

*Meetings.* The Secretary and her assistant have addressed some forty audiences, among them being the Illinois State Medical Society, Chicago Medical Society, American Nurses' Ass'n, School Children, Women's Clubs, Social Service Workers, Nurses' Organizations, Settlements, etc.

Resolutions endorsing this Society's work and pledging support were adopted by the Illinois Public Health and Welfare Association and by the State Medical Society at their annual meeting, while the Chicago Medical Society devoted its meeting of May 23rd to a symposium on Prevention of Blindness.

**Administrative.**

*Chicago.* The effectiveness of the Society's efforts to discover uncared for babies with sore eyes is being distinctly aided as a result of recent co-operative relations established with the Infant Welfare Society. The latter organization now employs a nurse who devotes her entire time to visiting new born babies and all cases of sore eyes which this nurse discovers are reported to this Society.

*Springfield.* In planning organized work throughout the State, the Society has established a local committee in Springfield· Chairman, Dr. L. C. Taylor; secretary, Miss Anna L. Tittman, secretary of the State Board of Nurses' Examiners. Among the members of the Springfield Committee are the Commissioner of Health and Safety, Superintendent of Schools, a member of the Board of Education, and representatives from the State Board of Health, Woman's Clubs, Medical Societies, Nurses' Organizations, and the Catholic Church. This committee has already referred three cases for prosecution, and the Health Commissioner has complied with the committee's request that he notify all physicians and midwives in Springfield that Babies' Sore Eyes is a reportable disease, and that the Department of Health purposes to co-operate with the Springfield Committee for the prevention of blindness in enforcing the law. Provision has also been made for following up all reported cases and providing hospital care when necessary.

*Kewanee.* Plans for a similar local organization are under way in Kewanee, the secretary having recently visited Kewanee for this purpose.

**Legislation.**

*Wood Alcohol.* Upon the request of the Society, the Hon. Wm. G. Thon has introduced a bill which requires that wood alcohol in all forms and under any name shall bear a poison label with skull and cross bones, and that all mixtures containing wood alcohol shall be similarly labeled. This bill has passed both the House and the Senate and is now before the governor for signature.

**Case Work.**

The major part of the practical work has been conducted by Miss Blatchford who is doing Social Service Eye Work at the Central Free Dispensary and among the school children whose parents are unwilling, or unable to secure care—and by Miss Alice Kurtz, former assistant secretary, who has followed up all cases of infant ophthalmia reported to the Chicago Department of Health and secured evidence in connection with the cases referred to the state authorities for prosecution. Miss Blatchford reports as follows: Cases referred by the Central Free Dispensary, 37. Of these 27 are closed as we have been able to secure the needed aid in treatment—glasses or hygiene. Of the remaining 10, 3 are children under treatment prior to receiving glasses, and the others are patients needing future watching and aid. Forty-four children have been referred by school doctors and nurses who were unable to secure the necessary care. Glasses have been prescribed and procured for 13 children, 8 are under treatment at dispensaries through our direction, 4 were persuaded to go to private doctors; in 7 cases action is pending as it may be necessary to take them into court; 12 cases are still being visited.

Miss Kurtz reports that 52 cases referred from the Department of Health—visiting nursing care has been secured for 7, hospital care for 2, and dispensary care for 5, while 8 physicians and midwives have been referred to the State Department of Health for having failed to report babies' sore eyes in their practice. One of the latter cases is such a flagrant violation of the state law, that it is to come up before the grand jury.

**Members and Funds.**

Mrs. Frank O. Lowden has accepted the invitation to serve on the Advisory Council. Mrs. Ira Couch Wood has been obliged to resign from the Council because of her removal to Washington, D. C.

To date the Society has 817 enrolled members, and 77 contributions from persons who prefer not to be called members. Of this number 59 have enrolled since January 1, 1917, while 410 have contributed to the Society's funds during both 1916 and 1917.

Receipts since January 1, 1917, are as follows:

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|---|---|
| Donations | $1,775.00 |
| Dues from new members | 956.33 |
| Dues from old members | 3,274.57 |
| Total | $6,005.90 |

At the meeting of the Board of Directors held on Tuesday, May 29th, the Secretary was granted a leave of absence for three months in order that she might respond to a very urgent request to give assistance to the Bureau of Nursing of the American Red Cross.

As the Society's creative work has been seriously interfered with since the declaration of war, Miss Alice Kurtz, the assistant secretary, has returned to her former work of Red Cross teaching. Miss Dorothy Blatchford will give her full time to prevention of blindness work during the summer months and will thus be enabled to carry on not only the social service work but will follow up and secure treatment for all uncared for cases referred to the Society, including those from the Department of Health. Accordingly, the Society's work will suffer no interruption during the Secretary's absence.

On May 21st the offices of the Society were moved from 30 North Michigan Blvd. to the Peoples Gas Building, 122 So. Michigan Blvd., Room 1949. The new telephone number is Harrison 3870.

Respectfully submitted,

Carolyn Conant Van Blarcom,
Secretary.

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The first center for the examination of applicants for the Aviation Corps of the United States Army has been established at the Illinois Charitable Eye and Ear Infirmary, Chicago. The work is under the supervision of Majors Casey A. Wood and Norval Pierce, assisted by Lieutenants Charles P. Small, Eugene Cary, and Austin A. Hayden, and Drs. Francis Lane, Warren Johnson and Wm. B. West. Colonel Stephenson, the medical officer in charge of the Central Department, and Lieutenant George W. Woodwick are co-operating with the above officers, to facilitate the work of organization. The infirmary has given the use of a number of rooms, so that the examination of the eyes, the ears, and the general physical examination are carried on simultaneously without confusion. A number of Boy Scouts are efficiently engaged in doing some of the clerical work. Within a short time it is expected that between twenty-five and fifty examinations will be made every day. A more detailed account of the work will appear in the next number of the "Record."

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The American Board for Ophthalmic Examinations has granted certificates of proficiency in Ophthalmology to the following applicants. Certificates will also be granted to certain other candidates who have not yet completed their tests by sending in their proper case reports and lists of these additional names will be published as soon as they are acted upon by the board.

Adams, Chas. F.
Allport, Frank
Andrews, Jos. A.
Barnes, J. Steele
Bell Mace Hudson
Bennett, Arthur G.
Black, Nelson M.
Blair, Wm. H.
Blue, J. B.
Briggs, H. H.
Brown, S. H.
Bulson, A. E.
Butler, Wm. K.
Buvinger, Chas. W.
Caldwell, Chester T.
Calhoun, Ferdinand Phinizy
Carson, W. E.
Clark, Chas. Franklin
Clark, F. T.
Cohen, Martin
Crisp, W. Henry
Culver, Chas. M.
Darling, Chas. G.
Derby, Geo. Strong
Glosser, H. H.
Gradle, Harry S.
Greenwood, Allen
Hansell, H. F.
Harrower, David
Hartshorne, Isaac
Henderson, Frank L.
Holt, Eugene Erastus, Sr.
Hurley, Edw. D.
James, John Henry
Jervey, J. W.
Jessaman, L. W.
Johnson, Walter Buckley
Johnston, Wilson
Kennedy, E. W.
Kirkendall, John S.
Koller, Karl
Kollock, Chas. W.
Lamb, Robert Scott
Lane, Arlene Laura
Larkin, Bernard, Jr.
Levy, Louis
Lewis, A. C.
Lewis, F. Park
Nabers, Sam F.
Patton, James McDowell
Parker, Walter Robert
Porter, John
Posey, W. C.
Ray, J. M.
Ricker, Wm. G.
Rood, Luther C.
Shastid, Thomas Hall
Simpson, W. Likely
Stanford, J. B.
Starr, Elmer G.
Thompson, Geo. H.
Thompson, Peter H.
Vail, Derrick Tilton
Veasey, Clarence A.
Virden, John E.
Walter, Will
Weed, Harry M.
Weiner, Meyer
Wells, David Washburn
Wilmer, Wm. Hol-

deSchweinitz, Geo. E.
Donovan, John A.
Easton, E. T.
Emerson, Linn
Fagin, Robert
Francis, Lee Masten
Fringer, W. R.
Lovell, David B.
Macleish, Archibald L.
Marlow, F. W.
Martin, Henry H.
May, Chas. A.
Minor, J. L.
land
Wolff, Julius
Wood, Casey.
Yazujian, Dickran Maruke
Zentmayer, Wm.

## NEWS AND ECHOES OF THE NEW YORK MEETING.

The annual session of the Ophthalmic Section, A. M. A., was this year noteworthy chiefly because of its collateral issues. The program was of average character and presented a number of interesting and carefully prepared papers, but the military complexion given to the general meeting showed a decided reflex in the activities of the section.

Then, the Board for Ophthalmic Examinations had a very successful gathering, and after putting the candidates through both practical and theoretical quizzes (the examinations were in charge of Dr. Walter Lancaster) awarded nearly 120 diplomas. It is believed that this meeting marks the commencement of a useful and widespread career for an undertaking that has for its chief purpose the direction of forces that will not merely separate the ophthalmic "sheep from the goats," but will prepare effectually the ophthalmologist for his special career.

The main object of the American College of Surgery is to gather within its folds an accredited number of Fellows and Members upon whose standing it has put the seal of acknowledged approval. In the same way we need not only a *recognized roster* of ophthalmologists of the first rank, but we ought to encourage by all means in our power additions to such a category. Indirectly this will be the effect of the examinations of the Ophthalmic Board. Candidates who fail this year will be encouraged to study and practice their art until they are capable of passing the examinations. The tendency will be to improvement all along the line. We can assure prospective candidates that there was not in the examinations held in New York a single question or problem that any intelligent, practical and moderately informed ophthalmologist should fail to answer. Moreover, the examinations are under the control of men well known to our profession, teachers of conspicuous ability in representative medical schools who may be counted upon to deal fairly with those presenting themselves for the test. There were no "catch" questions, and none to show how much more the examiner knows than the examinee!

As for the papers presented to the Ophthalmic Section, full abstracts of them and of their discussion will be found in these columns, to which the reader is referred.

The proposed merger of the principal American Ophthalmic Journals is an accomplished fact. It is believed that we shall soon have (probably the first issue will be January, 1918) at least one monthly periodical that will be not only a high class scientific magazine in the best sense of that term, but will also appeal to the practical, busy ophthalmologist, who looks for short, clear, concise papers on up-to-date ophthalmic subjects—a real combination of the best material hitherto contributed to the *Archives of Ophthalmology,* the *Annals of Ophthalmology,* the OPHTHALMIC RECORD, *Ophthalmology, Ophthalmic Literature,* and the *Ophthalmic Year Book.* It is now the privilege—one might say the duty—of every progressive ophthalmologist not only to subscribe for the merged periodical, but to assist its editorial staff and its management, both by literary and financial aid, to make and maintain it as the premier ophthalmic journal printed in the English language. Further details of this scheme will appear from time to time in the RECORD.

A war tragedy of sad interest took place before our very eyes during the New York meeting. A well-known professor of ophthalmology in one of the Balkan States was driven from his country by the invading Germans. He is a man who has entertained many Americans in his own country and when he felt obliged to seek an asylum elsewhere migrated, with his wife, to the United States. Almost destitute, nearly insane, and believing that he had been robbed by German spies who followed him in his long journey to America, he has been taken in charge and helped by several members of the Section.

One of the most important meetings of the week was a demonstration (on half a dozen candidates for the Signal Corps service) of the methods employed in examining military aviators. As is well understood by all medical men, the most important consideration is the possession by a military aviator of perfect eyesight, good hearing and normal equilibrium.

The first mentioned includes normal (or nearly normal) oculomuscular balance, 20/20 (without glasses) in each eye separately, binocular single vision, normal color sense (Holmgren-Jennings chart used) and absence of any organic lesion or infection of any part of the ocular apparatus. Major Lyster, Professor of Ophthalmology in the Army Medical School, Washington, D. C., fully explained to a much interested audience that filled the large Astor Hotel ball room the plan of examining the eyes, while Dr. Isaac H. Jones, of Philadelphia, did the same for the ears and for the equilibrium tests. Dependence is chiefly placed upon the rotary test for the latter. Dr. Jones exhibited his revolving chair, which certainly elicited, with the least waste of time, the nystagmus, various forms of vertigo, etc., required in the test. In this connection it must be remembered that a piano stool has, in emergencies, done service for this test, and was used abroad when the usual Barany revolving chair could not be had in sufficient numbers. The Jones chair is, however, as much an improvement on earlier apparatus as the Morton ophthalmoscope excels the Liebreich instrument.

Other tests for muscle orientation, etc., were also demonstrated, to show that when our squadrille, counting thousands of airmen, are organized, ophthalmo-otologists in large numbers will be needed to conduct these examinations, even if the testing of 15 or 20 candidates can be carried on at one time. It is the present mission of Major Lyster, and others on the Surgeon-General's staff, to go over the whole country for the purpose of establishing examination centers for instructing examiners and especially to standardize the examinations. Every ophthalmic or aural surgeon below the age of 55, who has not yet joined the Medical Reserve Corps, should do so at once. His services will surely be needed in the near future. It is in doing this sort of work that he will accomplish most for his country.

Examination centers for candidates have already been established in all the larger Eastern cities, and, quite recently, in Chicago. In most cases the established Eye and Ear Infirmaries have been utilized for the purpose, local ophthalmic and aural surgeons (members of the Medical Officers Reserve Corps) being detailed for the purpose. These officers, drilled in the standardized form of examination, call, when it is required, for aid from their colleagues to assist them in examining each day the ten, twenty or thirty applicants which are fairly certain to present themselves Helping to provide student material already constituted and in course of preparation for the aviation camps is the most effective, as it is the most patriotic, task that an ophthalmologist or otologist can undertake. The country is in urgent need of, literally, thousands of trained flyers. American boys make the best, as they were the first military aviators. Those of my readers who have not seen the up-to-date account of this subject given by war correspondent Shepherd, in the May *Everybody's*, should do so forthwith. The professional observer points out that the despatch of trained airmen to the front can be accomplished much sooner than we shall be able to transport other soldiers, while the need—the pressing need—of their services is one of the most evident signs of our unpreparedness. Let us all, then, help on the good work in every possible way!

The writer of these notes was detailed for active service (Nov., 1916-Feb., 1917) to make examinations of about 500 candidates for the Officers Reserve, Aviation Department of the Signal Corps U. S. Army, and as a result only about ten per cent of those presenting themselves were accepted. For various good reasons, however, the percentage under conscription will be much larger. It must not be forgotten, though, that under any circumstance, intelligent, educated, courageous, resourceful and physically perfect young men—in a word—the best timber for military aviators—are *raræ aves*.

Another rather important subject informally discussed at the meeting was: How can medical men of all sorts—specialists and others—who have reached the age limit of 55, and cannot consequently join the Medical Reserve Corps, most effectually devote their energies to patriotic pursuits. Even if he is already a member of the corps the policy of the Government is, naturally, to employ young men; and, as a rule, it is a good one. That the department should control men so constituted physically and professionally that they may be ordered anywhere to perform full duty—special or other— is more to be desired than to have on hand a percentage of material whose medico-military value is limited by age and coincident disabilities. These "objections" also apply to officers of the Medical Reserve Corps who have passed the age limit; and it is only in particular instances and in limited fields that these will be called upon to serve. Later on, perhaps, the Government may call for medical and surgical volunteers from among those disqualified by age. When that time arrives it will certainly be followed by a generous response on the part of many a young-old man who can, at least, perform such tasks as examining recruits, taking over part or all of the practice of a brother practitioner gone off to the war, acting as volunteer inspector of camps, etc., etc. There will surely be work for everyone. C. A. W.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 25 E. Washington, St., Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

The Paris Ophthalmological Society devoted its May meeting to the ophthalmology of the war.

Dr. and Mrs. Derrick T. Vail, of Cincinnati, announce the marriage of their daughter, Rosalind, to Mr. Harold S. Dwight, on June 4th.

Dr. Joseph W. Charles, of St. Louis, has been reappointed a member of the board of the Missouri School for the Blind. The term is for six years.

Dr. T. J. Lambert, who has spent the past four years in Union City, specializing in diseases of the eye, ear, nose and throat, has taken over the practice at Aurora, Illinois, and removed to that place.

Dr. D. M. Reynolds, formerly of Clayton, has removed to Danville, Indiana, where he will be associated with Dr. L. W. Armstrong.

A special course of four weeks in ophthalmology is offered by Dr. T. J. Williams, Chicago, for the accommodation of those who do not desire a longer course. The work is both didactical and clinical.

Dr. S. R. Edwards, oculist and aurist to the Calumet and Hecla Mining Company's Hospital, has become associated with Dr. J. G. Huizinga of Grand Rapids, Mich., and has moved to that city.

Dr. George F. Libby, of Denver, Colorado, expects to resume practice in that city after a summer spent in the East. Dr. Libby attended the meeting of the American Ophthalmological Society at Hot Springs, Virginia, May 29-30.

To help the unfortunates under its care, the Blind Babies' Aid Association of the United States has asked the health department to send deserving children to its offices at room 1308, Chicago Title and Trust building, where they will be fitted with glasses.

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The following officers have been appointed by the American Academy of Ophthalmology and Oto-laryngology:—President, Dr. W. Y. Dayton; first vice-president, Dr. E. Stieren; second vice-president, Dr. A. C. Magruder; third vice-president, Dr. J. Green, Jr.; treasurer, Dr. S. Large; secretary, Dr. L. M. Francis.

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Madame Alma Gluck, the popular opera prima donna, sang before the employes of F. A. Hardy & Co., at their Chicago office on a recent afternoon. She was accompanied on the piano by her husband, the famous violinist, Zimbalist.

These popular stars were house guests of Mr. John H. Hardin, president of the Hardy company.

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A committee has been appointed to suggest ways and means of making an effectual campaign against trachoma in Amsterdam. The committee reports that among 73,480 school children, 1.39 per cent were found to have trachoma. The committee recommends examination of all children at the fifth year, and further examination every year of those recorded as having had trachoma.

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Iron goggles for the use of soldiers in the firing line, have been devised, having transverse and slanting slits, which permit ample vision. A circular piece of woolen goods is fastened around the part that serves as the lens. This absorbs sweat dripping from the forehead. The goggles protect against the sun and against small flying particles of shells, while the slits have the effect of rendering vision more acute.

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Members of the Chicago Ophthalmological Society, the Chicago Laryngological Society and the Aero Club of Illinois were invited on June 14th to witness a demonstration by Major T. C. Lyster, U. S. A., of the recently adopted tests of vision, equilibrium, etc., of candidates for the aviation section, signal corps of the army Dr. Jones of the reserve corps demonstrated the various equilibrium tests, supplementing the actual tests with a series of moving pictures.

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A pair of under-sea eyeglasses for divers has been invented by Dr. Dudgeon, an English physicist. The lowered visual acuity under water is overcome by means of an "air lens," which to a degree neutralizes the refractive index of the water. In air the lens has no effect at all, neither magnifying nor reducing an object; but in water it acts as a converger, shortening the focus of the lens of the eye.

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Dr. Percy G. Bell, a young ophthalmologist of Winnipeg, who has been in active service on the western front since the beginning of the war, has recently been promoted to the rank of lieutenant-colonel. The young officer's rise to this rank is in recognition of his outstanding efficiency and gallantry. He writes to his father, Dr. C. N. Bell, that he has lots of eye work, and that he receives the Ophthalmic Record regularly at the battle line.

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Writing in the Glasgow Medicine Journal, Pollock is convinced that the increased prevalence of squint among children of from 4 to 8 years is directly attributable to the excitement and nervous strain they are under while watching the more exciting and hair breadth escapes seen in many cinematograph displays. An attendance of once a month is all that he would allow for school-children; and he strenuously objects to the introduction of the cinematograph into school teaching, except at rare intervals.

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The instrument known as the otophone, devised by Dr. d'Albe to enable blind persons to read by the ear, has failed to accomplish the results claimed for it. In a report by four experts of the National Institute for the Blind, of London, who attended a demonstration of the instrument, it was stated that "the speed which the inventor was able to attain—one word in one minute and a quarter—would be utterly useless. The use of the instrument was so nerve-racking as to make the otophone of little or no value to blind people, and the expensive character of the instrument would put it out of reach of the average blind person." It can at present be described as only an interesting scientific toy.

The annual meeting of the Pacific Coast Oto-Ophthalmological Society was held in Spokane, Washington, June 18 and 19.

The officers were: Dr. C. A. Veasey, Spokane, president; Dr. P. A. Jordan, San Jose, first vice-president; Dr. F. A. Burton, San Diego, second vice-president, and Dr. R. A. Greene, Spokane, secretary-treasurer.

The entertainment was in charge of a committee headed by Dr. Wilson Johnston of Spokane, the other members being Dr. O. T. Batcheller and Dr. S. B. Hopkins. Dr. Johnston gave a large dinner for the members at the Spokane Club.

A New York physician has devised a form of "movie spectacles" which are said to give the wearer a sharper view of the screen. As they are made on the principle of the stenopaic slit, it can be readily understood how they could be put to satisfactory use for other purposes. Pilots along the coast have found them useful. The United States Government has made a number of tests in every direction on the firing lines and in the aviation field, and the efficiency of the marksmen is very appreciably increased by the use of these spectacles. Moreover, the man using the gun can face the sun and obtain a good sight within two degrees of looking direct at the sun, which would be almost impossible otherwise.

One of the unexpected happenings in the war is the extreme rarity of sympathetic ophthalmia, notwithstanding the great frequency of war wounds of the eyes. In a personal experience Weekers has encountered only one instance of it among 800 cases of war injury of one eye. He recalls that during the Franco-Prussian war of 1870 fully 55 per cent of the wounds of one eye were followed by sympathetic ophthalmia, and even during peace times it averages 11.6 per cent according to Hobby's statistics, and 21 per cent after unsuccessful cataract operations, according to Steffen. He has found only a very few cases mentioned in accessible literature during the war, while many comment on the rarity of the sympathetic involvement of the other eye. These facts justify conservative treatment of the wounded eye, unless one's hand is forced by irritation and pain. He is inclined to ascribe the rarity of sympathetic ophthalmia nowadays to the asepsis and antisepsis which are now so generalized.

Barraquer, of Madrid, emphasizes that anatomically speaking a cataract is a cyst, and should be treated as such. He uses for extraction of the cataract a little device that acts on the principle of a cupping glass. It is applied directly to the cataract, with aspiration from an electric motor, the vacuum aspiration under complete control. Any kind of cataract, he says, can be extracted in this way gently and absolutely thoroughly, even the minutest scraps of opaque tissue coming away, and all without the least pressure on the eyeball or vicinity, and without the necessity for introducing any sharp instruments inside the eyeball. He has applied it for thirty-three ripe senile cataracts, twenty-four not yet ripe, and five overripe, and also was able to extract by this means a scrap of glass inside the lens in one case. The success was prompt and complete in every case but two; in these the capsule had been lacerated before so that aspiration could not proceed according to the normal technic. He suggests that it might be possible by this means to improve the lens in cases of extreme myopia. With cataract, he adds, there is no need to wait for it to ripen.

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A certain military writer makes the statement that "the army with the best eyes wins the war." It is certain that the war has speeded up scientific endeavor in many fields, and in no department has greater progress been made than in that of optics, and that the art of seeing has received greater development within the years of conflict than in any similar period of the world's existence.

The world at large was puzzled by the rapid and overwhelming defeat of the Roumanian army. It is the opinion of an apparently well informed writer in the *Revue des Deux Mondes* that the solution of the puzzle lies in the field of optics. The writer says "everyone knows that the former friend of the Triple Alliance was provided with Krupp guns coming directly from Essen. But very few know that, with a really devilish foresight, the Prussian munitions purveyors wrecked the extremely delicate leveling instruments by filling them with water only, instead of a salt solution whose purpose is to prevent the freezing of the liquid. Of course, had the Roumanian army allied itself with the Central Powers this little "oversight" would have been corrected in due time. As soon as the Roumanian guns reached the mountain regions, the diminutive glass tubes burst—we know the rest."

Nowadays there is no smoke of battle to direct gun fire; keen eye sight must be helped out by mechanical means. Without the means of setting and aiming them scientifically, the finest artillery in the world becomes useless in the day of battle. Hence it is that the science of optics will be almost, if not quite, one of the deciding factors of the war. Without periscopic and other apparatus of indirect vision, trench warfare would be absolutely impossible, and aviation without optical aid is unthinkable. Mr. Charles Nordmann, a French writer, recently stated that optics has revolutionized modern warfare in the same degree that it has overturned pretelescopic astronomy.

The legislature has appropriated $505,000 for the construction of a modern eye and ear infirmary, and we hope considerations of war economy will not be allowed to interfere with this necessary project. In size and equipment the present building is inadequate to care for the large number of poor persons who apply for relief. Not only is the application of modern sanitary methods next to impossible but the inflammable construction renders the building a constant menace—a menace that is more terrible because many of the patients are blind. The best specialists in the state have given their services free in the infirmary, and it is proposed to make the institution a training school in ophthalmology and otology. Just at present the infirmary is devoting an entire floor to the government to test the eyesight and hearing of applicants for aviation service. We think the new hospital should be built as soon as possible.

## OBITUARY.

Dr. William John Neill, Chicago; April 18. Age 66.

Dr. Otto W. A. Schirmer, New York; professor of diseases of the eye in the New York Post-Graduate Medical school; died May 6. Age 52.

Patrick W. Maxwell, surgeon-aurist to His Excellency the Lord Lieutenant of Ireland, died March 10. Age 61.

von Zehender, once professor of ophthalmology in the Universities of Bern and Rostock, died recently at the age of 91.

## BOOK NOTICE.

Eye, Ear, Nose and Throat. By Ballenger and Wippern. The second edition has just been published, containing 524 pages, 180 engravings, and 8 colored plates. Price $3.50.

# CHICAGO EYE CLINICS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 A.M. | Richard S. Pattillo (P.-G.)<br>G. W. Mahoney (Poli.)<br>R. B. Stephenson (P.-G.)<br>Carl Wagner (E.E.N.T.) | *Geo. F. Suker (P.-G.)<br>C. H. Francis (Poli.)<br>A. Duncan (P.-G.)<br>A. G. Wippern (E.E.N.T.) | W. F. Coleman (P.-G.)<br>S. M. Hager (Poli.)<br>H. N. Lyon (P.-G.)<br>Carl Wagner (E.E.N.T.) | G. W. Mahoney (Poli.)<br>Rich'd S. Pattillo (P.-G.)<br>R. B. Stephenson (P.-G.)<br>A. G. Wippern (E.E.N.T.) | C. H. Francis (Poli.)<br>R. B. Stephenson (P.-G.)<br>J. A. Cavanaugh (E. E. N. T.) | S. M. Hager (Poli.)<br>C. W. Hawley (P.-G.)<br>H. J. Morlan (P.-G.)<br>A. G. Wippern (E.E.N.T.) |
| 10 A.M. | Brown Pusey (N.W.U.)<br>Geo. T. Jordan (N.W.U.)<br>Robert Blue (N.W.U)<br>Every day, 10-12 A. M.<br>Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) |
| 1 P.M. | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>E. V. L. Brown (County)<br>and<br>Geo. F. Suker (County)<br>Daily, 2:30 P. M.<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffmann (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensobn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>Oliver Tydings (E. E. N. T.) | W. Allen Barr (Inf.)<br>*Frank Allport (St. Luke's)<br>*Frank Brawley (St. Luke's)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>*PaulGuilford (St.Luke's)<br>*Casey Wood (St.Luke's)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Roht. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensobn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>H. W. Woodruff (Inf.)<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>Oliver Tydings (E. E. N. T.) |
| 3 P.M. | *Wm. E. Gamble (U. of I.)<br>Wm. H. Wilder (Rush)<br>H. S. Gradle Daily<br>3-5 (E. M. D.) | R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.)<br>*Wm. E. Gamble (U. of I.) | Wm. H. Wilder (Rush)<br>R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.) | Geo. F. Suker (P.-G.) 2-5<br>H. Cuthbertson<br>A. Duncan |
| 4 P.M. | W. F. Coleman (P.-G.)<br>H. N. Lyon (P.-G.) 2-5 | C. W. Hawley (P.-G.) 2-5<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | J. B. Loring (U. of I.)<br>E. K. Findlay (U. of I.)<br>G. F. Suker (P.-G.) 2-5<br>H. Cuthbertson (P.-G.) | C. W. Hawley (P.-G.)<br>I. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | W. F. Coleman (P.-G.) 2-5<br>H. N. Lyon (P.-G.) | |

*Special operative eye clinic.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 1844 W. Harrison Street.

E. M. D.: Emanuel Mandel Dispensary, 1012 Maxwell St.

County: Cook County Hospital, W. Harrison and Honore Streets.

Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.

M. H.: Mercy Hospital.

Poli.: Chicago Policlinic and Hospital, 221 W. Chicago Avenue.

P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.

N. W. U.: Northwestern University, 2431 Dearborn Street.

Rush: Rush Medical College, W. Harrison and Wood Streets.

St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

U. of I.: College of Medicine, University of Illinois, Congress and Lincoln Streets.

THE
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# PRESENT STATUS OF CORNEAL TRANSPLANTATION AND SOME EXPERIMENTAL DATA.*

BY
SYDNEY WALKER, JR., B. S., M. D.
CHICAGO

This operative procedure while it has intermittently held the attention of many workers in the field of ophthalmology for over a century, has up to the present time, proven to be a failure, except in rare instances. A review of the literature on the subject will show to a fair degree the causes of failure and the main elements which might lead to success.

To Pollier de Quengsy, a French oculist, in 1789, is given the credit of being the pioneer, in this work. He attempted to transplant a piece of glass into the center of the cornea, and from this time on other men, Nussbaum 1856, Huszar 1859, Von Hippel 1877, attempted the same thing, while Drummer 1889, and Satzer 1899, tried celluloid, all with no success to speak of. Salzer reported a case of which the glass was retained for two and a half years, but it ultimately sloughed out and this at least showed the great vitality and endurance of the cornea.

F. Reisinger in 1824 was the first to attempt the transplantation of cornea from one animal to another, by means of a transcorneal-keratoplasty. One-half the cornea cleared up in two and a half days but later the eye sloughed out. Schon in 1827 denied the practicability of this work, but did no experiments to prove his assertion. Both Dralshagen and Diffenbach in 1831 were unsuccessful and decided that if foreign cornea did adhere it would soon become turbid and unserviceable.

Bigger, in 1835, took up the problem with more vim than success. He first operated on the leucomatous eye of a gazelle by means of a complete section of the cornea, and reported a good result. Later he operated in the same manner on a timber wolf and thirteen rabbits. His chief difficulties were movements of the animal at the time of operation and sepsis. His original account itself is worth the reading, from the standpoint of subtle humor, and an appreciation of the difficulties under which the earlier experimenters worked.

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* Read before the Section on Ophthalmology, A. M. A., June 7, 1917.

H. Power, in 1872, took up the work with a somewhat different idea, and his experiments with a cork borer and sharp steel punches were the fore-runners of the later day trephine operations. His results were bad and due, he said, to the lack of precaution and poor technique. Among the many other investigators on the subject, von Hippel led a school that used the trephine. His was a mechanically operated instrument and there was great difficulty in controlling the depth of the cut and the sterility of the instrument. His results were not good, mainly because he attempted heteroplasty. Others followed von Hippel, using his trephine, and among them Zirm, who grafted the cornea of an eleven-year-old child to that of a case of total opacity of the cornea having vision of shadows. The result was, that six months later the patient had vision 3/20 with plus 5.00. One year later the patient died, and as the eye was not examined the depth of the leucoma was not known. Fuchs, in 1894, operated eleven cases and, on account of the opacity of the graft and the penetration of new vessels, he gave up the project.

Magitot lately took up the trephine method, but he used an instrument much different from von Hippel's. His was a modification of Elliot's trephine which would cut a graft approximately 5 mm. in diameter to the required depth, and after repeating the operation on the eye to be transplanted, he transferred the grafts. They were held in place by a nasal and temporal corneal stitch over the graft. Atropine was instilled and the eye bandaged for forty-eight hours. Not only did he use fresh tissue, but also infants' eyes that had been submerged in aseptic serum for some time, washing them in Ringer-Locke solution after taking out, and grafting as before. He reports that the grafts grew, and that the opacity was not great. This most certainly is an example of the great vitality of corneal tissue.

Probably the most spectacular operation of this type of work was the case of Chimanowski, who attempted a total corneo-ciliaryplasty, if the term may be used. He operated on a twenty year old patient who had perception of light, and removed the whole cornea and the ciliary body without touching the muscles. The graft was placed in normal salt solution for three hours, and then sutured to the prepared host by ten suture points. Healing took place and the sutures fell out. On the twenty-fifth day one part of the cornea was clear, the other grayish, vision being light perception. On the fiftieth day no suture line was visible, anterior chamber was 2 mm. deep, and the iris was visible and an astigmatism of 37 D. was reported. In the seventh month there was some organization, vision fingers at eighteen inches, tension being 18 mm. One year later a sensitive cornea, tension 23 mm. opacity of globe but no atrophy was found. Iridectomy was tried, but it resulted in phthisis bulbi.

Morax took the idea of F. Reisinger, except that he attempted to transplant the leucomatous portion to the periphery, and the clear periphery to the center. Strauch, in 1840, preferred to dissect from one limbus to the other, using parallel blades and Wolf, in 1873, finding the tissue opaque from lack of nutrition made conjunctival flaps. Schaeler, 1877, advised large grafts after complete resection of the leucoma, while Durr and Rasenni, 1877, claimed that part only need be covered. Probably the thought of large flaps and better nutrition led to the trans-corneal keratoplasty, which many men tried in modified forms. Among the most recent to devise and try this form of technique is Lohlein in 1910. His was essentially the idea of Wolfe in 1873, for his operation consists of a trans-corneal section of required width across the cornea from limbus to limbus, making a generous conjunctival flap at each end. The thickness was controlled somewhat by the depth of the cut of the parallel blades. The flap was sutured in place at both sides by its conjunctival attachments and the eye bandaged. His conclusions are: that he has done forty such grafts and is most satisfied with results, which are best he thinks following leucoma from burns, and most unfavorable after ulcer. He thinks that thin grafts are the best, but says that Tiersch grafts are hard to get.

Over a long period, therefore, many types and forms of operation were tried; and from them the larger questions arose, such as type of tissue to be used, causes and prevention of opacity following operation, nutrition of the transplanted flap, and lastly the operative technique. We can, therefore, make these general deductions from the voluminous literature on this subject on the above main points.

As is known, there are four different types of operation.

Autoplasty, Homoplasty, Heteroplasty and foreign body transplants. The latter two can be at once dismissed, because of universal failure, and Heteroplasty being at the present time a biologic problem. Bonnefon and Lacaste stated that most failures were due to Heteroplasty. Hence Autoplasty and Homoplasty are the two types to which most of the more recent experimentors have clung.

Autoplasty as the name applies, is the transplantation of cornea from one part of the eye to another part of the same eye or from one eye to the other in the same animal. Homoplasty is the transplantation of corneal tissue from an individual of one species, to another of the same species, or to a species not far removed. As the two types are so similar, they will be dealt with together.

The causes of failures, other than those due to Heteroplasty and foreign body transplants have been as follows. Selection of cases: Healthy tissue should be the first prerequisite, although Fuchs claimed to have had his best results in Interstitial Keratitis. Magitot doubted this. The depth of the leucoma, which should not extend to Decemet's membrane, for it has been shown by several men that it is necessary to get all of the leucoma and yet not puncture the anterior chamber. Magitot has stated that if all the leucomatous tissue is not obtained, the results will not be good, and no hope can be held out for a complete growth of the tissue. "The thing to know," he says, " is how deep the leucoma extends, but only at time of operation can this be determined." Leucomata as the result of ulcers, especially with posterior corneal synechia, are not good operative risks. It is of course assumed that the conjunctival sac is free from infection, as this was the cause of most failures in the work of earlier operators.

Of all the operative accidents, puncture of the anterior chamber appears as the leading cause of failure, although union has been obtained under these circumstances. Trauma of the graft while handling, loosening a graft after transplantation by lid movements, and local necrosis from stitches, were given by others as causes of failure.

As regards nutrition, there is a wide variance of opinion; for some authors claim that too much nutrition causes vascularization of the graft, and others take the opposite view. Salzer stated that the more vessels present, the more cloudiness and connective tissue. Zirm, on the other hand, tried to cover the periphery of the cornea with conjunctiva, to promote nutrition of the graft. Lohlein in his later paper stated that the best nutrition followed vascularization.

Hence, summarizing the above notes of many different authors, it can be said that foreign body transplants and Heteroplasty are bound to lead to failure, and that Autoplasty and Homoplasty offer the greatest chance of success. Still even in the latter two, the technique of operation and the selection of cases have a great bearing upon the final result.

## Experimental Work.

The technique of this operation was developed on the eye of dead dogs, of which I had a plentiful supply from the physiological laboratory of the University of Chicago. It was first found that the corneal grafts with conjunctival flap attached, similar to those of Lohlein, were unpracticable to obtain from a dog, on account of the anatomical form of the socket and the third lid. The curvature of the cornea even in the human makes it difficult to follow a surface of this kind especially when a cataract knife is used. Hence some other method was necessary to obtain a large graft with sufficient nutrition. For this reason the modified Tiersch graft was decided upon, and the technique developed to a fair degree after a great many trials upon dead animals.

The live specimens were then prepared as follows. Bichloride bath and isolation in fumigated cages. The eyes of the animals were treated for a period of three weeks previous to operation, by 2% Protargol instillation each evening, and washing out sac each morning with 1-4000 bichloride solution. After smears showed the absence of the streptococcus and other virulent bacteria the animal was ready for operation. The work was all done under ether, and with as much asepsis as a physiologic laboratory will permit.

## Description of Operation.

The conjunctival flap is prepared in the following manner: The bulbar conjunctiva is loosened up well over the whole area extending from seven to four o'clock on the dial, care being taken to have it loose enough so that it can readily be pulled over the entire cornea without much tension. Some hemorrhage results, and the corneal graft is not removed until this has entirely stopped, as will be explained later on.

The eye is now prepared as in operation for cataract extraction, and after grasping the conjunctiva below with fixation forceps a Graefe cataract knife is passed into the cornea at the required depth and the point emerges on the other side as far as is possible or desired. Then with a sawing motion the flap is cut down as far as necessary, and the knife emerges, leaving the flap attached to the cornea at the upper pole. The flap is now grasped with the fixation forceps, and is gently lifted up and cut away at the upper pole. This yields a flap of corneal tissue about 3x5 or 4x6 mm. in size, which is somewhat irregular in outline, and of slight difference in thickness throughout.

The graft is now made ready for the host, by passing three or flour fine silk ligatures through it at its corners and close to the periphery. On account of the difficulty met with in this step, a special forceps was designed, which resembles the standard fixation forceps with a notch cut in its middle third so as to allow the needle to be passed through the tissue in question.

The host whose corneal cavity made in the same manner as above and larger in diameter than the flap, is now moistened with normal salt solution and the flap, immersed in the same solution, is laid upon the eye. The sutures are inserted at the points where the flap limits extend and just deep enough to hold, viz.: about 1/4 to 1/3 the depth of the cornea. When all sutures are inserted, they are pulled taught, so as to approximate but not to strangulate the tissue. The thread is now cut off close, and the eye washed gently with normal salt solution.

The flap is now carefully brought down over the entire cornea and sutured fast below with silk sutures. In dogs, the third lid was sutured over the flap and the lids bandaged.

Forty-eight hours after the operation the bandage is removed and the conjunctival flap loosened. One finds at this time some of the corneal sutures gone, and those that are not are taken away. Dionin (5% solution) along with weak bichloride irrigations are now used. On direct examination of the eye at this stage one finds the corneal graft clouded and there is some injection. In fifteen days the process tends to clear, leaving some small blood vessels which after three to four weeks gradually disappear. The final result is a leucoma discernible under strong light. The outlines of the graft gradually disappear in two to three months.

It has always been the aim to obtain a flap thinner than the tissue removed from the host, and one can see after healing has taken place, the new tissue filling in the slight depressions in the cornea. After three to four months there is little left to show how extensive the flap was, so smoothly is the corneal surface epithelialized.

## Experimental Data.

The laboratory experiments on live animals consisted of operations on twelve dogs, part of which had both eyes operated and part only one. The first three dogs were entirely unsuccessful, for the anterior chamber was punctured and the eye sloughed out. The next three were partially successful in that in one dog the anterior chamber was punctured but the graft held. Organization and exudate filled in about the graft forming a dense leucoma and the animal was discarded. The other two were successful from the standpoint of technique as the anterior chamber was not punctured and the flaps were held in place. After the first dressing one of the dogs managed to scratch his eye and as a result the corneal flap sloughed out. The other dog retained his graft, but a dense leucoma formed. In the above six dogs both Autoplasty and Homoplasty were tried.

Dogs seven and eight. Operated in the described manner and dressed on the third day. Grafts holding but noticed slight depressions with some grayish material at borders of graft. On the sixth day both grafts are relatively clear and injection not so marked as before. The twelfth day shows beginning organization in both grafts and on the twenty-fifth day there is marked organization and cloudiness. Subconjunctival injections of 8 minims of salt solution and two of 5% Dionin were given with no result. In six weeks the same condition was present sc animals were discarded.

Dog nine. Autoplasty was attempted here. Operation as described. Final result organization of graft especially from nasal side which foiled all attempts to correct. Dog had fair vision as is evidenced by good red reflex with ophthalmoscope, slight cloudiness only and ability to get about without much disturbance due to vision.

Dogs ten, eleven and twelve. Profiting from previous work the minimum amount of blood was allowed when conjunctival flap was brought over the cornea. In all three dogs the grafts held well, some cloudiness present on fifth day which increased to the twelfth day and then gradually disappeared to the naked eye. The organization was less than on any previous group, and although it persisted for six weeks, under Dionin, both it and the cloudiness have gradually faded away. Ophthalmoscopic tests show a normal red reflex, and focusing on the cornea, the graft could be discerned especially about its edges by its wave-like appearance. After four months the eyes in all three animals appear normal to the naked eye, and the normal surface is absolutely smooth and regular.

### Case No. 1.

Mr. J. H., white, twenty-six years of age, dense leucomata covering central ⅓ of cornea in both eyes as result of smallpox ulcers. Autoplasty was attempted here, on one eye only. The operation was performed successfully with the exception that the leucoma was so deep that it was impossible to remove it all On loosening the conjunctival flap on the second day the flap appeared grayish and was only attached at its upper border. The attachment was so small that the flap was later brushed off by the upper lid. The final result has left the eye in a better condition as regards the leucoma than before operation. This demonstrates that corneal grafts heal poorly on diseased tissue as has been shown by previous experimenters.

### Case No. 2.

Mr. T. J. S., white, twenty-three years of age, slight opacity central ¼ corneal surface. Homoplasty performed in this case. Graft taken from eye about to be enucleated. Operation performed successfully and at present time graft is in place, only slight cloudiness and organization, appears to be gradually clearing up under atropine and dionin.

### Case No. 3.

Miss B. W., white, nineteen years of age, opacity ¼ cornea slight and result of phlyctenular ulcer. Autoplasty tried in this case. The graft at present in place, and cloudiness and organization no more than expected at this time.

Data on the final result of the last two cases will be shown later.

In my earlier experiments I allowed plenty of blood to remain on the surface of the cornea when the conjunctival flap was brought over, desiring to give the flap plenty of nutrition by this means. Invariably I found intensive cloudiness and organization, although healing had taken place readily enough. Later I reversed that procedure, and stopped all bleeding from the conjunctival flaps before bringing them down. This I find a much better method for beside giving the corneal flap plenty of nutrition by means of the serum present, much less cloudiness and organization resulted.

Most of my earlier failures were due to sepsis and undeveloped technique where the anterior chamber was punctured. Later, opacities and organization were due mostly to too much blood in contact with the flap and the result therefore was not good.

### Conclusions.

1—Heteroplasty and foreign body transplants offer very small chance of success and should be discarded, according to the literature.

2—Autoplasty and Homoplasty at the present time will terminate with fair results, depending on the technique of operation.

3—The modified Tiersch graft is a simple, satisfactory and expedient manner of obtaining graft.

4—The conjunctival flap, as described, offers sufficient nutrition with the minimum cloudiness and organization, besides serving to hold the graft in position while union is taking place.

5—With properly selected cases this operation will give fair results.

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## THE STEREOSCOPIC CAMPIMETER SLATE.

BY
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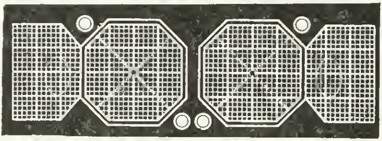
At first glance, the Bjerrum screen would seem to supply all that is needful in the way of perimetry. Tangent perimetry at the distance of two meters gives a large blind spot and the ability and opportunity to record it or any scotoma as large as it appears. This is, indeed, a great advantage. A disadvantage which goes with tangent perimetry is the fact of peripheral limitation which, at the distance mentioned above, is for practical purposes about 25°. Beyond that point, the distance from the eye is so much greater than the distance from the eye to the fixation point on the screen that comparisons are false. There is one other consideration which goes with the subject of perimetry and that is the peculiar variation in results obtained at different distances from the eye in spite of precautions taken to make the test objects of the same size to the eye, distance from it having been taken into account. Thus a field taken on the perimeter will be larger than one taken on the Peter Campimeter, as a rule. And a scotoma taken on the Peter Campimeter will be larger than one taken on a chart by the binocular method. The usual perimeter distance is a little short of twelve inches as a general thing but some are made with a distance of ten and a half inches. The Peter Campimeter is made to use at six and a half inches. The usual binocular method is about seven and a half inches, but has the added advantage of stereoscopic vision and the steadiness of vision only attainable by the mutual aid and action of two eyes. The closer the test object is to the eye, within reason, the better the results. After having been tested myself, it would seem that distinctions can be made sharply at the near distance. The doubtful zone seems to be transformed into a scotomatous area a little further away. The recording surface of the perimeter is compressed and in some cases as much as twelve times. Thus the test object travels two inches to cover ten degrees on the arc but the recording area reserved for this ten degrees is on one instrument about ⅙ inch. A ten degree scotoma is indeed a large one and it is likewise impossible to record scotomas with any accuracy when the recording is thus reduced. It is an indispensable instrument for taking quickly and easily the field limitations for white and perhaps for colors. One cannot outline the blind spot or even scotomas with satisfaction. Even the large relative scotoma for red found in tobacco and alcohol poisoning can not be recorded on the perimeter with the success obtained by the Peter Campimeter. The Peter Campimeter is another indispensable instrument; it records the defect the same size as it appears and can be used at the bedside and is easily carried about. As long as the macular area is intact, it is easy to use it to record the average color field, the blind spot and scotomas. Dr. Peter has placed a

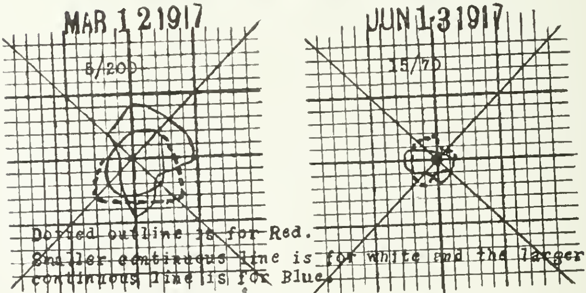
Bjerrum screen, as it were, close to the eye and improved its efficiency by so doing.

All monocular methods fail when the macular area is affected and many minute central scotomas, both absolute and relative for colors and also for white, will be overlooked unless we resort to the binocular method. The minute central scotomas make the difference in vision of the right eye of Mr. B. who is suffering from tobacco and alcohol poisoning, of 15/200 and the left eye which is 15/40. The scotoma before the poorer eye is absolute for colors and white but relative before the left eye for red and green. This could not be detected except by the binocular method. Two cases of pigmentary retinitis of about the same age and same general stage present themselves but the vision of the two is far apart; one sees about 50/50 and the other about 15/200. Again the binocular method demonstrates the poorer vision to be due to a central scotoma too small to find any other way. This type of central scotoma is often too small to outline and not infrequently too small to detect except by the use of the special Haitz charts designed for the purpose.. Macular defects due to Choroiditis or central scotomas due to disease of the macular bundle tax the ability of the man who desires to keep good records for the sake of thoroughness and the comparison at various times as a basis of estimating progress or retrogression. It is quite a surprise to find how many field defects are overlooked because the method of looking for them has been at fault. There seems to be no one instrument which will fit all cases.

The Haitz Campimeter supplied with the set of charts uncovers defects ten degrees either way from the fixation point. They are made of paper and one must count the little squares in order to record the point of appearance or disappearance of the test object upon the printed diagram. The area covered is too small to permit examination of the blind spot unless the patient is directed to look at the innermost point and this I have not found to work well. The counting of the squares takes time and even with binocular fixation, we are justified in making haste if we are accurate at the same time. It occurred to me that we should have an instrument which would permit rapid and accurate testing of the macular area and blind spot as well. Accordingly I have designed an instrument for this purpose which is called the Stereoscopic Capimeter Slate. It covers ten degrees above, below and internal to the fixation point. Externally, it covers up to about twenty-five degrees. It can be marked upon with chalk and thus the time and energy consumed in locating the desired points is avoided and the strain on the patient's concentration is avoided. This makes for accuracy and ease, and the blind spot can quickly be outlined and relative scotomas for colors detected and their limitations found. It is made by the Bausch & Lomb Optical Company, who are to produce a special stereoscope to go with it. The average wide angle stereoscope attains a wide field by the use of stronger prisms or additional dioptric media. This wide field is necessary for the use of the Slate but the prismatic aberration usually found in the average wide angle stereoscope would be fatal to good color testing.



STEREOSCOPIC CAMPIMETER SLATE



Dotted outline is for Red.
Smaller continuous line is for white and the larger continuous line is for Blue.
The recording stamp used for this record covers only ten degress.

Also the distance of the test chart from the eye would be altered and the arrangements made to have the degrees on the Slate accurately represent real degrees would fail of their purpose.

Mr. Max Poser of the B. & L. Co. has designed a stereoscope which will stand upon the table and permit both examiner and patient to be seated. The unsteadiness hitherto inseparable from the hand stereoscope is noticeable for its absence. Thus, one of the great objections to instruments close to the eye is removed. The additional field necessary for the Slate will be gained by perfect optical correction and the value of the measurements thereon will not be impaired.

An illustration of the Slate is appended which appears much bolder than the finished article which is not offensive to the eye when viewed through the stereoscope. The effect is one of soft contrasts. The blind spot is lightly outlined and the measurements of Gradle used in locating it. For the purposes intended, it would seem most useful and combines in one instrument desirable, in fact indispensable, features for accurate work.

The absence of motion of the stereoscope is of tremendous advantage and the ability to examine both blind spot and macula is a valuable feature. The recording of the points on the Slate saves time and is more accurate; the transfer to the design stamped or printed being made later. Nevertheless, the perimeter will still be a good friend; Dr. Peter's Campimeter is indeed a boon; Haitz has made the world his debtor by his clever grasp of the possibilities of the binocular method of examining the field with his charts up to ten degrees and it is our hope that this Slate will be of some use.

An illustration showing records made on the Slate of a case of Chorio-Retinitis involving the macular area is shown.

## SOME REMARKS CONCERNING VERNAL CONJUNCTIVITIS.

BY

FRANK ALLPORT, M. D.

CHICAGO, ILL.

In the October, 1903, issue of the OPHTHALMIC RECORD I reported a case of vernal conjunctivitis treated principally by the X-ray. So far as my knowledge is concerned, this is the first reported case of vernal conjunctivitis where an absolute cure of the disease was achieved. Many methods of *mitigating* the suffering of such cases have been proposed. Such remedies consist principally of lotions, ointments, ice packs and especially removal to cold climates as soon as warm weather begins. Such procedures, however, do not cure the disease. They merely ameliorate the suffering.

The case reported in 1903 was a young lady living in Henderson, Ky. I treated her one summer without result. I amputated the growths, curetted and cauterized their bases and did many other things recommended by various ophthalmologists, but early the next spring she presented herself in my office even worse than before. I had seen many cases of warts of the skin effectually and permanently removed by the X-ray. Microscopical slides of warts and masses obtained from patients suffering from vernal conjunctivitis showed a great similarity in structure. I, therefore, determined to try the X-ray treatment upon this patient. On the advice of Dr. W. A. Pusey, I amputated the growths again and curetted them. She was then subjected to thorough and many X-ray exposures. After she had had a few treatments, her suffering rapidly lessened, the lids improved in appearance and she became absolutely cured, with a healthy conjunctival lining of all her lids. I have seen this patient many times since and her disease has never recurred. This treatment has been tried on at least fifteen cases in my own practice from that time to this. They have all been cured; that is, all who have carried the treatment through to the end. I regret that I have not kept notes of these cases and I cannot even be sure of the number of cases I have treated, but certainly fifteen cases have come under my observation. My colleague, Dr. Casey A. Wood, has also followed this line of treatment with satisfaction.

So far as I know, even up to the present time, no other method of procedure can claim absolutely curative results. I fail to understand why more ophthalmologists do not use this method. I earnestly urge them to do so.

Dr. Pusey has treated most of my cases. He is now using radium in one of my cases and feels that it is quite as effective as the X-ray and much more convenient to use. He thinks it is also safer. I am able to assist the cure by the occasional use of tooth brush brossage. I brush the lids with either boric acid powder or a 1-1000 bichloride solution. I prefer the former. I also give my patients a mild lotion to be used with the eyecup, and I have them spray the closed lids with cold water and sometimes use ice packs in the first stages of the treatment. These patients are, however, under treatment only a short time before they begin to be comfortable and do not need the ice cold applications. I treat such patients through the hot weeks of the summer without inconvenience to them.

I am sure Dr. Pusey would be glad to answer any questions concerning his method of using the X-ray or the radium. His address is 7 W. Madison Street, Chicago.

If other ophthalmologists have used this treatment, I think it would be wise to send short articles on the subject to the editor of the OPHTHALMIC RECORD for publication. Records of failures will, of course, be quite as valuable as records of successes.

# REPORTS OF SOCIETIES

## FIFTY-THIRD ANNUAL MEETING OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY,

AT HOT SPRINGS, VA., MAY 29 AND 30, 1917.

### FIRST SESSION

TUESDAY MORNING, MAY 29TH.

The meeting was called to order at 9:30 A. M., by the president, Dr. Peter A. Callan, of New York City. After a short executive session, for the details of which see the minutes of the business sessions, the scientific program was commenced.

The author of the first paper, Dr. Geo. S. Derby, of Boston, having been called into the service of the United States, his paper entitled. "Social Service and Follow-up Work in the Eye Hospital," was not presented. It was read by title, however, in accordance with a motion afterwards passed, which included all the members unable to attend the meeting for the same reason.

The second paper on the program, "Heterochromia Iridis, Heterochromic Cyclitis, and Allied Conditions," was then read by Dr. E. C. Ellett, of Memphis, Tenn.

### Heterochromia Iridis, Heterochromic Cyclitis, and Allied Conditions.

Dr. E. C. Ellett, Memphis, Tenn.: Heterochromia iridis is a condition in which the iris of one eye differs in color from that of the other. It is very rare, usually occurring in brunettes; and it is most often noticed first in early life or at birth. It may be either congenital or pathological. Either no pigmentation is present in one eye, or it is present and is lost through some pathologic process. Heterochromic cyclitis results in cataract and glaucoma simplex. Under allied conditions are included cases that do not properly belong here, but are considered because there is a difficulty in the differential diagnosis. The most important of these allied conditions is glaucoma following uveitis. Some of the difficulties in diagnosis are illustrated by the histories of three cases of heterochromic cyclitis, two cases of heterochromic iritis with cataract, two of heterochromic iritis with glaucoma, and five of uveitis with glaucoma.

## Discussion on Dr. Ellett's Paper.

Dr. Edward Jackson, Denver, Col.: A case of uveitis involving the iris is attended, if it is severe enough, with a permanent change in the color of the iris; and yet the class of cases to which Dr. Ellett has referred is, I think, a perfectly distinct class. I have seen one case that illustrates the completeness of recovery that may occur in cases of this class. This was in a man who, at about the age of thirty years, had such a uveitis. He was the brother of a doctor in Pennsylvania, and was for a part of the time in the University of Pennsylvania Hospital. I saw him perhaps six or eight years after the attack, with a very remarkable difference in the color of the two eyes, and complete cataract. When he was about forty-one, the cataract was removed. He regained full vision, a vision of 3/5, I think. He has been under observation ever since. There was no marked choroidal lesion. Since I first saw him, which must be now twelve or fifteen years ago, there has been a noticeable lessening in the difference in the color of the irides. They are much more alike now than when I first saw him.

With reference to the causation, if the sympathetic nervous system takes a share in the etiology, I think that it is probable that the ciliary ganglion is an important seat of the lesions.

Dr. Arnold Knapp, New York City: It seems to me that in this class of cases the changes which are most important are not only the change in the color of the iris, but also the absence —or, at least, the lack—of uveolar pigment in these irides. For instance, if you examine a cataract in a nephritic person, you will be struck by the absence of uveal tissue, and the margin of the iris will be faintly gray, with slight notches. We have paid particular attention to this class of cases in the hospital for a number of years, and have never been able to find anything referable to the sympathetic system in them. In practically all the cases, the patients have reacted to the tuberculin test; and in a large number, they have done well with tuberculin therapy. The prognosis, as Dr. Ellett says, is good, so far as removal of the cataract and cessation of the glaucomatous process is concerned.

## Two Cases of Congenital Iris Coloboma.

Dr. Charles E. G. Shannon, of Philadelphia, Pa.

Two sisters were admitted to Jefferson Hospital, the older girl having a double advancement performed for squint. In the father of these girls, the right eye was normal, but the left had very poor sight. The iris revealed a partial coloboma, and the field showed a defect for white and colors, corresponding to the coloboma. There were five children in the family, and their eyes were all defective, except in the youngest child, whose eyes presented no defects. Similar defects existed in the eyes of the father's brothers, but no evidence of ocular defects existed in the mother's family. These cases are presented because of the extremely interesting family history, and for the purpose of corroborating the contention of de Beck, Arlt and others, of the hereditary influence in iris coloboma; and the part played by sex, maternal shock, and a vicious prenatal environment in the causation of the defect.

**Discussion on Dr. Charles Shannon's Paper.**

Dr. J. A. White, Richmond, Va.: Within the last few months, a patient consulted me, a young woman of twenty-four years, for defective vision. The influence of heredity was shown very clearly in the pathological condition of the iris. The left eye had a vision of 20/100; the right was almost entirely blind. In the right eye, there was entire absence of the iris, except for a slight fringe at the lower border of the cornea, a little below the lens. There were a few opacities in the lens, which was ectopic. In the other eye, there was no iris whatever. She stated that her father had good eyes, but that her mother, her brother, her sister and her baby had defective eyes. I asked her to bring her mother, who was fifty-four years of age, to see me. The right had a complete coloboma; and the left, a partial coloboma, down and out. There was no coloboma of the choroid. She stated that her father had good eyes, but that her mother had become blind from cataract at the age of seventy-two, and that one of her sisters had bad eyes. Her lens had opacities. Her son, eighteen years of age, had entire absence of the iris in both eyes, and both lenses were ectopic. In the right, he had a clouded cornea, the other cornea being clear. With plus 10 he got a vision of 20/100. The defective vision was due to slight opacities in the lens. The daughter, twenty years old, was a cretin with nystagmus. The baby also had no irides. The lenses, however, were in proper position, the right one being slightly everted; and both lenses showed faint traces of opacities. I have not been able to see the rest of the family. There were five or six cases in it, however. The grandmother had cataracts, the mother had a coloboma of the iris, and none of her children has any iris whatever. In all, we have slight opacities of the lens; and in several, severe ectopia of the lens. It would be difficult to get a family showing better the influence of heredity in these congenital defects of the iris.

Dr. Lucien Howe, Buffalo, N. Y.: This is a very interesting thing in ophthalmology. My attention was called to it recently, when I was attempting to make some measurements of accommodation in one of the worst cases that it is possible to conceive of. The line of the fatigue curve was similar in principle to that of a child. The amount of literature that we have concerning the condition is considerable; and just as soon as my attention was called to it in that way and I tried to look up the subject, I was surprised to find how much I did not know about it. Not only has one of our own members, Dr. Libby, gone over the subject thoroughly; but those who have seen the bibliography given by Loeb must have been surprised to find how many hundreds of cases we have on record. I think that the time has come to tabulate the cases and try to find the line of succession, as the geneticists call it. They have found that certain lines of succession exist in certain strains, and that the malformation follows one sex or the other. We know, of course, that in hemophilia and night-blindness, the defect follows the line of the female sex; but those who have not had their attention called to it would probably not appreciate the number of these peculiar hereditary conditions. Geneticists find that they do follow the line of one sex, and they even go further than that. They have been experimenting with certain forms of insects, such as the fruit fly, or drosophila, which is an example of what is called the mutant type. They have taken the natural fly, and selected the sports, which comprise some defects of the eyes especially. I have here the wild type, a dark red, a light red, a light, a white, and an eye which is barred, as they call it—a greatly deformed eye; and in some specimens, no eye at all. By changing the mates, so they say, almost any form of the eye can be obtained. That explains how we find this defect, and the method of the regular line of descent. I shall not go into this further now; but we know that in certain instances the defect jumps over a generation. How it is that it jumps over one generation and appears in another is difficult to explain. Color blindness is the best example of this. The father has it, but the daughters do not; yet the daughters' sons do have it, and this shows also the lines of the chromosomes.

Dr. G. Oram Ring, Philadelphia, Pa.: A year ago I exhibited before the Ophthalmic Section of the College of Physicians of Philadelphia a mother and child who illustrated very strongly this condition. The mother was thirty-five years of age, and showed a pronounced notching below and in, in one eye, and a perfectly definite coloboma in the other. The second child, who had died a month before the exhibition of these two cases, has shown a precisely similar appearance. The third child, who was the one shown, exhibited a definite notching in each iris, but no coloboma. In all three cases, the lens was involved in about a similar way; so no accurate appreciation of the condition was possible, because of the opacity. It is interesting to recall, in this connection, what the anterior lower segment of the eye shows before the iris is formed. The ciliary body is present, and back of it the posterior fibrovascular sheath. The anterior fibrovascular sheath gets practically all of its nutrition from a prolongation of the posterior sheath along the antero-posterior portion of the lens. As the eye grows along, the anterior chamber is developed, and that portion along the lens capsule. Later, the anterior sheath becomes the pupillary membrane. It is not difficult to imagine that as this development goes on, the iris may be caught, or not permitted to grow at all, if there be any inflammatory conditions. What interests me particularly, by reason of the study of these cases, is the difficulty of attempting to operate. When I showed the cases it was the general consensus of opinion of those present that it was an improper procedure. I took the right eye, which had no coloboma. I found that the lens was calcareous; and the result of three discissions was no more than one should expect to get from a very ordinary discission in an ordinary congenitally opaque lens. The fourth accomplished but little more. The lens was still hard, and there was an opening of not more than 4 mm. half way through the lens. After all that work, I am still a considerable distance from the surface of the lens.

## The Removal of Foreign Bodies from Within the Eyeball and Orbit. Report of Cases. By Dunbar Roy, M. D., Atlanta, Ga.

There is no diversity of opinion as to the seriousness of eye injuries due to the entrance of foreign bodies in the eye. The question of most interest centers in what operative procedure gives the best results, whether the foreign bodies be magnetic or non-magnetic. The writer's record shows 25 cases of perforation of the eyeball by foreign bodies, lodged either in the ball itself or in the orbital cavity. Five cases here reported with skiagraphs were of unusual interest.

Case I.—Left eye lost several years ago. October, 1913, right eye was struck by a small sliver of steel. Cut entirely across the cornea, and particle removed from posterior chamber with a hand magnet. Final result, after three operations and four months' treatment, with correction, 20/70.

Case II.—Injury September, 1913, by a particle of brass striking the left eye. Cut of cornea and the particle dropped down to periphery of anterior chamber. Finally extracted by stretching of iris and the use of forceps. Results, final vision = 20/40. The point of interest in this case was the method of removal by stretching the iris and bringing the foreign body into view.

Case III.—Injury left eye by small birdshot. No contusion or laceration seen. Vision = 0. Pupil dilated under atropin. Shot found embedded in sclera, with one-half protruding into posterior chamber. Final result, enucleation.

Case IV.—November, 1915, right eye struck by particle of steel at sclerocorneal junction. Radiograph showed particle in orbit. Eye healed with fairly useful vision. This was a case of double perforation.

Case V.—January, 1915, injury of left eye by shot from air-gun. X-ray showed the foreign body posteriorly to the inner side of ball. Operation under cocain. Internal rectus cut. Shot extracted between conjunctiva and sclera. Result, 20/40.

### Discussion on Dr. Roy's Paper.

Dr. T. Y. Sutphen, Newark, N. J.: I think that we learn a great deal in our routine work; and Dr. Roy's paper reminds me of a case I had, in which the foreign body had entered the vitreous through the cornea, iris and lens. The direction of the foreign body was impossible to see, but the magnet brought the foreign body against the cornea. Then the foreign body was easily caused to slip through the wound without injury to the eyeball.

Another case I saw lately, in which a tiny piece of steel had gone through the eyeball between the nasal pole and the equator. It seemed as if we saw two foreign bodies, from the appearance of the plate. There was a globule of air in the vitreous, which looked like a little bright ring floating in the vitreous. I thought that it was a foreign body also; but when the opening in the sclerotic was enlarged and the magnet introduced into the vitreous chamber, the foreign body came out, and nothing more was seen of the globule of air.

Dr. Allen Greenwood, Boston, Mass.: It may interest the members to realize a little bit of the vast amount of work of this sort that is being accomplished in France today and, I suppose, in all the war zone. There are about ten per cent of the men who come to the base hospitals that have some eye complications; and the majority are either shrapnel wounds of the orbit or of the eye itself. The question of leaving a piece of shrapnel in the orbit is rather complicated in war work, because of the almost certainty of infection. I saw, last summer, five cases of gas gangrene of the orbit with one death. That is something that probably few of the men here see in civil life, an infection with the Bacillus aerogenes capsulatus; and if you do see it, it will startle you, as it did me. I saw Colonel Lyster do his routine work with the giant magnet, and saw him, within an hour and a half, remove a number of pieces of shrapnel with the Haab magnet. There is an immense amount of work for the giant magnet, the hand magnet, and the X-ray, in localizing injuries in the eye and in the orbit. You have to go after practically every piece of shrapnel in either the eye or the orbit; and, sad to relate, in one case of every four, the substance is not magnetic, being aluminum, brass, or some alloy not subject to the action of the magnet.

Dr. Peter A. Callan, New York City: What is the preference? Through the scleral wound or the anterior chamber?

Dr. Greenwood: Colonel Lyster is removing them by drawing them off into the anterior chamber, and then into the bottom of the anterior chamber; making an incision with a keratome, passing the end of the magnet in and drawing the foreign body out of the wound. That is the custom at the special hospital in Boulogne. Personally, I use the hand magnet, because in No. 22 we do not have a giant magnet. I had a hand magnet and removed a number of pieces from the vitreous, after localization with the X-ray; and there will be need of men who are experts in the localization of foreign bodies with the X-ray, and undoubted need of men who are expert with the giant magnet and the hand magnet, whichever they prefer.

Dr. David Harrower, Worcester, Mass.: I am glad that Dr. Roy has brought up this old but interesting subject of foreign bodies in the eye; and I think that it is a good thing to thrash it out once more. In Worcester, we have large machine shops, large wire works, etc., and see a great many foreign bodies in the eye. I just wanted to get up and compliment Dr. Roy on the good results that he has obtained from these cases. I do not think that we always get such good results.

The small magnet, in my hands, has, I think, proved much more efficient than the large in most cases. When the foreign body is deep in the vitreous, instead of trying to draw it with the large magnet, I make the opening in the sclera, as near the foreign body as possible, always in the antero-porterior direction; and, taking the flat point of the magnet, I insert it into the wound, and as near the foreign body as possible. Getting the point in in that way the foreign body catches on the point. When I bring the magnet to the wound I turn it at right angles and find it easier to get the foreign body out in that way.

Dr. E. C. Ellett, Memphis, Tenn.: Those of us who have not Dr. Sweet at our elbow should bear in mind the difficulty that the average X-ray operator has in making an accurate localization of foreign bodies. The radiographers will turn in a chart with the foreign body beautifully marked out where it isn't. I had that forcibly brought to my attention by a case in which a small boy had been shot with an air-gun shooting a big bullet. I did not think that there was a foreign body in the eye. The pupil reacted, the anterior chamber was apparently normal in depth, and the vision did not seem to indicate that there was a foreign body in the eye. In order to be sure, however, I had him X-rayed; and they brought me a chart showing the foreign body in the eyeball. There was contusion and swelling. The accident had occurred twenty-four hours before I saw the child. I thought I would look again into the wound of entrance. Forcibly depressing the lower lid, the shot rolled out from the lid. The X-ray had indicated something very serious, but is was simple.

Dr. F. M. Wilson, Bridgeport, Conn.: I just wish to speak of a point in technique. Most of the speakers seem to favor the small magnet, but I much prefer the large one. With the large magnet, after I have the foreign body in the lower part of the anterior chamber, I make an incision in the upper part. I think that it is a much better surgical procedure to use the large magnet and control the foreign body, bring it to the wound and get it out, than to introduce the tip of the small magnet.

Dr. W. H. Wilder, Chicago, Ill.: The matter of technique, of course, is very important in the extraction of these foreign bodies, and I should like to refer to a method that I had to pursue not long ago. The result was extremely gratifying, as the case concerned a young man in the employ of a large manufacturing institution at Chicago. For a week he had gone on since the accident, and there was no suspicion of the presence of a foreign body. Finally he had to stop work for seven or eight days, and when his vision began to fail he was sent to me. Although I could detect no wound it seemed to me that there might be a foreign body. Although they have a systematic regime in our institution of making X-ray examinations, etc., they had somehow failed to make an X-ray in this case. One was made, and we found a foreign body; but they were unable to localize it. The localization I obtained at the Presbyterian Hospital showed the foreign body back of the eye, evidently outside the sclera. When the vitreous cleared I was sure that I saw something up and to the inner side of the left fundus, of about three disk diameters, (?) a little to the temporal side.

After cocainizing the eye thoroughly I passed a heavy suture through the superior rectus at the insertion of the tendon, so that I could draw the eye very far downward. This the patient stood very well. Then, having a perfectly accurate localization, showing the foreign body lying about under the superior rectus, I had the assistant contract that. In a small field of operation it is difficult for too many hands to get around it. The field will be obliterated because the hands are very large as compared with the field. In such cases I have lately used a little instrument which some of you may have seen. It is a little speculum. Here we have a little screw passing through, and there is a little handle. You can spread the blades by these arms. At the end of the blade tiny and made of nonmagnetic material, there are two little hooks. These are set exactly at the end so that they will be out of the way. You take the little speculum and open the tiny wound you make in the sclera. Having an assistant draw aside the superior rectus tendon, I made an opening where I thought the foreign body might be; and just within two millimeters of it I introduced the little speculum. You know how difficult it is to hold open a wound in the sclera. You have to use sharp hooks, and it takes hands to hold them, so I thought it was necessary to devise some sort of appliance to overcome this difficulty. I have found this speculum useful because the lips of the scleral wound are apt to wipe off the foreign body as it is withdrawn. This instrument simplifies the operation considerably. I was able to remove the body which was a millimeter and a half in width. The patient has 20/40 vision.

Dr. J. W. Charles, St. Louis, Mo.: In Dr. Green's armamentarium, as I remember, there was a little instrument called the Critchett slipper, which we used in cataract operations. I recall that Dr. Cohn told me of a case that was non-magnetisible, which occurred in 1891, and in which he used this instrument. He got the case immediately after the accident. He used the ophthalmoscope and went through the scleral opening with the instrument. He fished out a small sliver in that way. I thought that it might be a good thing to use this if we could not get the foreign body out with forceps.

Dr. Geo. E. deSchweinitz, Philadelphia, Pa.: Dr. Roy's exceedingly clever technique suggests that it might be interesting for me to record an experience of my own. A man was brought to my clinic, a mason, working in granite. A fragment of the stone had penetrated the corneoscleral junction. It was perfectly visible to inspection. I made an opening with the keratome through the sclera. I tried to get the fragment with forceps and failed. I then made a small iridectomy, in the hope that the particle would cling to the iris. The iris came but the stone remained. It then lay on the capsule of the lens. I debated for some time how to get it out, because I knew that any instrument would probably produce a cataract. I got a piece of platinum wire, such as some use for a culture, and made a loop in it. I introduced some physiological salt solution and slipped this wire through the opening, and the little stone floated in the wound, so that I could draw it out with the wire loop. The condition cleared up and the man has normal vision with a small iridectomy. The smooth platinum wire, although it had to pass over the surface of the capsule of the lens, was almost without danger of injuring the capsule.

Dr. R. G. Reese, New York City: About a year ago I had a case in which there was a piece of copper in the vitreous.

The lens was apparently clear, except the upper portion—and the foreign body could be seen floating in the vitreous. I presented the case, before and after the extraction of the foreign body, at a meeting of the New York Ophthalmological Society. The body measured 1½x1½ mm. I extracted the lens, and, two or three weeks later, brought the foreign body into the anterior chamber by putting the patient in the front position. I got under the operation table and took a knife-needle. I entered the anterior chamber. Then I turned the patient over, made an opening at the corneo scleral junction and removed the body. He recovered with 20/30 vision. The patient had a small piece of copper in the other eye, which he would not allow me to remove because he said that the vision was so poor in the eye that I had operated on. I prefer removing the foreign body through the suspensory ligament of the anterior chamber, but it depends upon the size of the foreign body.

I prefer the giant magnet to the small because I have not been able to pull a foreign body into the anterior chamber from the vitreous with the small one. An opening in the sclera made in this fashion, I think, will be as efficacious as Dr. Wilder's instrument. I make a triangular opening in the conjunctiva and in the sclera. The apex of the conjunctival triangle is to the base of the scleral triangle. I slant the Graefe knife so that it will make an undercut. If you commence in this way and try to make the incision your wound will not close, it almost always stays open, but in this way you hardly lose a drop of vitreous. After extraction push the scleral triangle back and when it comes into position it will close up this portion, and when the conjunctiva is placed over it it will hold it in coaptation.

Dr. William H. Wilmer, Washington, D. C.: This paper and the discussion on it have brought out some very interesting phases. Of course, I think that we all agree upon the procedure in acute cases; that is, in military work and hospital work, but we are sometimes confronted, as I was, with a case of long standing, the foreign body having been in the eye for nearly two years. This patient of mine had a perfectly quiet and useful eye, and the foreign body was non-magnetic. What are we to do in such a case? The patient wants you to guarantee to get the foreign body out without injuring the eye, and you feel that it is dangerous to leave it there but cannot give the required guarantee. These are the cases that are most puzzling.

In the acute case, whether it is the posterior or the anterior route that is taken is immaterial. That is according to one's technique. The indications are positive. A case that I saw a few days ago will illustrate the point that I wish to make.

This patient has a vision of 20/70. There are a few dots in the lens, and the X-ray shows a non-magnetic particle imbedded against the sclera. The foreign body is about 3x1½ mm., and irregular in shape. It is a piece of the sheath of a Springfield rifle bullet, which, as we know, is an alloy containing copper among other things; but it is non-magnetic. The X-ray shows it down at the bottom, about 3 to 5 mm. to the nasal side of an anteroposterior line. We find the choroid atrophied, and the retina shows a slight retinitis proliferans; and just here, the foreign body can be plainly seen. The patient said, "Do you think that that ought to be taken out, and do you guarantee to remove it without injuring the eye?" My answer was, "If it were in my own eye I should like to have it out; but I think that it is very likely that I will make the eye worse by removing it. You must think it over, and I will do what you wish." It is a serious question. As his eye is perfectly quiet, with the vitreous clear, the lens not increasing in opacity, and the foreign body incased in fibrous tissue, it is hard to decide what to do. That is an interesting phase of the subject that we meet in civil practice, in contradistinction to cases met with in institutional and military work.

Dr. John E. Weeks, New York City: The subject is of great interest. I think that there is one principle with regard to the use of the magnet that is important to bear in mind, and that is that we should use the magnet that will produce the least traumatism. If we enter the eye with the point of the small magnet, and enter the vitreous, we produce an amount of trauma that we might avoid by using the giant magnet and putting the point of the magnet simply to the opening. I prefer, therefore, the giant magnet in many cases; because then it is absolutely unnecessary to enter the vitreous. The opening is made in the sclera, in a suitable position. My plan is to make a shallow T-shaped opening. Then, as soon as the point of the magnet comes to the sclera, if the foreign body engages, these two flaps separate, and the foreign body comes out without trouble. Closing the tissue over it causes the wound to close without the loss of any vitreous. In all the cases in which the foreign body is small and smooth and can be drawn through the wound I attempt to draw it into the anterior chamber; but when it is jagged, if small, or when it is large, I prefer to make an opening in the sclera.

Localization, if made properly—and by properly I mean by using methods that will avoid, in a certain number if not quite all the cases, the placing of the foreign body in the globe when it is actually outside—is a great aid. Even Dr. G. S. Dixon will not plot the position of the foreign body while the plates are wet, if there is any question of its location, as the shrinking of the film is enough to make an error as to the judgment in regard to the site of the foreign body.

Dr. W. E. Lambert, New York City: I think that one of the most important things with regard to this subject is the question as to which is the better method to adopt in extracting these foreign bodies, whether through the anterior or through the posterior route. Dr. Weeks is the only one who has expressed a decided opinion. I thoroughly agree with him that when the body is small and can be drawn forward into the anterior chamber it is preferable to extract it through the anterior route. If the bodies are large and jagged, however, I think that it is best to extract them posteriorly, through the vitreous, making the incision with a triangular flap in the sclera, and with another triangle reversing the base in the conjunctiva. As an evidence of the great accuracy of Dr. Dixon in locating a body I will say that I had a case in a boy who was hit in the eye with a piece of copper. Dr. Dixon located it and stood with me in the operating room. As I made the flap in the sclera and turned it over, there was the foreign body on the inner surface of the flap.

Dr. Wm. M. Sweet, Philadelphia, Pa.: In regard to foreign bodies in the orbit I would say that I have seen recently, within a month, two cases in which pieces of steel, in passing through the eyeball into the orbit, failed to injure the lens; so that is was possible to examine the fundus. In these two cases, and in one case seen previously, there was marked hemorrhage of the retina; as if there had been occlusion of a vessel. The concussion of the foreign bodies passing through the eyeball into the orbit is often enough to cause extensive hemorrhages into the retina, so that you may diagnose without the X-ray that there is a foreign body in the orbit. In the last case that I saw I believed that there was a foreign body in the orbit. I could see a small opening where it had passed to the choroid.

The X-ray showed it. The question whether the small or the large magnet should be used was thoroughly discussed in Philadelphia, I think, some years ago, before this Society. I, and many other men in Philadelphia, prefer the small magnet. We make a conjunctival flap in the outer or inner portion, depending on the situation of the foreign body. It is dissected back and two sutures placed at the upper and lower portion of the flap. Any nonmagnetic instrument is selected and the incision is made, not across the vessels, but in the same direction. An instrument passed in is more liable to do harm and cause detachment of the retina than if you make a post-scleral incision. The incision is brought together with two or three sutures afterwards and cold compresses are applied. When foreign bodies are in the anterior chamber I never open the chamber until I have the foreign body in the position that I desire. If it is in the iris you can often disengage it without opening the chamber. If it is not in a good position I draw it around to the upper portion before making an incision, and in many cases when it is in the lens, by a small hand magnet I can draw it up to the upper portion of the anterior chamber before using a keratome. If you do not do this the chances are that a large portion of the iris will be drawn out with the foreign body.

Dr. Wm. Zentmayer, Philadelphia, Pa.: I think that Dr. Sweet's interesting observation can be confirmed by the recital of a case that I have seen within the last month at Wills Hospital in which, by Dr. Sweet's method, the foreign body had been localized at the junction of the optic nerve with the sclera outside the eyeball. There were profuse hemorrhages throughout the retina, and the case was of some days' standing. The hemorrhages were so scattered that it was impossible to see which one showed the position of the foreign body.

It is also in my experience that the observation, reported some years ago, that in double perforations we have sub-conjunctival hemorrhages as a constant feature is not borne out. It is not my practice to routinely use the small magnet. When the case is recent and the foreign body is small I prefer to use the giant magnet and approach the patient to the magnet rather than approach the magnet to the patient.

Dr. Samuel D. Risley, Philadelphia, Pa.: I think that it is well to rather emphasize the point that Dr. Sweet has just made—that he prefers to use the small rather than the large magnet. Only yesterday I asked our senior resident how often, during his term of eighteen months, the giant magnet had been used. He said that he did not think it had been used more than four times during his term of service, which expires June the first, by the staff at the Wills Hospital. I, some years ago, presented to this Society some of the objections to the use of the large magnet, particularly when the foreign body is not an extremely small one, and illustrated my point by the case I then reported in which the foreign body weighed 2½ grains. I approached the man's face to the magnet. When he got within ten inches of the magnet he screamed and the foreign body flew out, a thirty calibre bullet, and landed on the tip of the magnet with the iris surrounding it. If the foreign bodies are situated in the choroid or retina and have been present long enough to excite inflammatory changes the endeavor to bring the body forward into the anterior chamber with the large magnet is very much more likely to produce detachment of the retina than though a scleral puncture had been made, as described by Dr. Sweet, and the foreign body taken out through the scleral puncture.

I should like also to insist on the wisdom of a meridional incision in the sclera rather than any other form of incision. The triangular flap in the conjunctiva is turned back and held by a stitch to the meridian puncture. We do not then cut across the vessels and are more likely to avoid difficulty. I have never had any trouble about the separation of the lips of this wound. I think that it is bad surgery to introduce the tip, no matter how small, of any magnet into the vitreous. It lessens the power of a small magnet to have a long tip. My own practice is to take the little conical tip of the small magnet and place it at the puncture in the sclera and then wait patiently for the foreign body to come, which, in the vast majority of instances, it does without further trouble.

Dr. Peter A. Callan, New York City: Many years ago I was very much impressed by Dr. Weber, of Darmstadt, who advocated the use of the conical magnet for the extraction of foreign bodies. My preference has been, if we use the large magnet, to bring a suitable foreign body into the anterior chamber, and not make the incision into the anterior chamber until the foreign body was located under the point at which the incision was to made; then to make the incision directly over the foreign body and extract it. By depressing the posterior lip of the wound the foreign body comes out without the insertion of the small magnet. I should advise each one to stick to his own method if he has found one that is suitable to himself and not because someone else tells of one that he has found better, to adopt that. Use the method you know.

### Treatment of Detachment of the Retina, with Special Reference to Müller's Resection of the Sclera.

Dr. Ervin Török, New York City: The etiology of detachment of the retina is still unknown. The treatment of the condition is mostly symptomatic. The results of all operations recommended have been very unsatisfactory. Spontaneous reattachment has occurred in as large a percentage of cases as has cure following operation.

The cases may be classified in two main groups: one, in which there is a disproportion between the contents of the eyeball and its coats; and the other, in which this disproportion does not exist. To the former group belong the cases in which the cause is a shrinking of the vitreous, and those in which the extension of the sclera is the underlying cause—as in high myopia. To the second group belong the cases in which the detachment is due to a choroidal exudate, hemorrhage, tumor, tubercle or transudate.

I have operated by the Müller resection of the sclera in twelve cases, in the first six of which I had no permanent results. The detachment in each of these cases was much smaller after the operation, or disappeared entirely; but it reappeared later. I attribute this to lack of technique and to the fact that I excised only a very small piece of the sclera. As I later increased the size of the excised scleral flap the results were better and more promising.

The idea of the operation is to relieve the disproportion existing by relieving the tension of the choroid so that it may come closer to the sclera, thus preventing the formation of an exudate between them and giving a better blood supply. The reaction following this operation is very light.

*DISCUSSION ON DR. TÖRÖK'S PAPER.*

Dr. David Harrower, Worcester, Mass.: As the reader of the paper has said, the operative procedure is most unsatisfactory. I have done a great many of these operations and, so far as I can recall, the results have been unsatisfactory in all. In only one of them was the result at all promising; but, unfortunately, the improvement did not remain.

I especially thought that it might be of interest for me to report, in this connection, a rather remarkable case of spontaneous reattachment. The patient, a lady of sixty-one years, was operated on for cataract in one eye. The second eye was operated on later with the result of 20/20 vision with correction. In 1904 she appeared with an enormous detachment of the retina with retraction of the right lower quadrant. She had vision for fingers in the lower field. She was taken into the infirmary and everything was done but operation. She was kept on her back for four weeks. I advised her then to return home. I believed the condition to be hopeless. In May of the same year, three months later, however, she came back with complete reattachment. She had 20/40 vision. I saw her in April, 1917, and she still had 20/40 vision.

Dr. W. R. Parker, Detroit, Mich.: In the first report of cases of detachment of the retina that I presented, there were eleven cases, of which one was cured, and three improved. Since that report I have operated on six others, none being improved. The total number of cases cured or improved, therefore, is the same as in the first report, but with a much lower percentage. Of these cases, four were myopic. Two were made worse, and two were unimproved. Since writing this paper, a considerable number of cases have been sent me for operation for detachment. Most of these were entirely unfit for any surgical procedure. These cases must be looked upon not only as cases of detachment of the retina, but as a certain surgical risk. Personally, I do not know now exactly the class of cases that can be improved. I do believe that there is a type or perhaps more than one type that can be operated perfectly well. Detachment of the retina, however, is purely a symptom, and not a disease entity; and we shall require much more experience than we have had in the present operations before we can know whether we are on the right track or not. All that we know at the present time is that we apparently have something that is better than we have ever had before.

### Report of a Tumor of the Frontal Lobe of the Brain with Ocular Symptoms, Autopsy.

Dr. Arnold Knapp, New York City, N. Y.: A man, thirty-six years of age, suffered from headache, slight mental disturbance, and loss of sight for six months. V. R. E. = 20/50; L. E. = 2/200. The field showed a large central scotoma and slight peripheric contraction and also optic atrophy. An X-ray showed a depression of the sphenoid anterior to the anterior clinoid processes and an enlargement with deformity of the pituitary fossa.

An exploratory operation was attempted in the right temporal region, but had to be abandoned on account of profuse hemorrhage, from the effects of which the patient died three hours later.

Autopsy revealed a large circumscribed tumor growing from the dura on the superior and mesial surface of the frontal lobe (endoglioma). The optic nerves were distinctly flattened. There was a cystic distention of the floor of the third ventricle in the region of the tuber cinereum.

### *DISCUSSION ON DR. KNAPP'S PAPER.*

Dr. G. E. de Schweinitz, Philadelphia, Pa.: I think that Dr. Knapp's is a very interesting communication. As he says, there have been many cases of a similar character reported. I have studied three tumors of the frontal lobe, one of these cases coming to autopsy. In the others, there was so much clinical evidence of a frontal lobe tumor that they may be so classified. One of these was in a child, and the others in adults. In all the cases, the symptoms were like those described by Dr. Knapp, with a central scotoma.

Dr. Knapp referred to another symptom that, taken with these ocular signs, seems very important in the diagnosis of frontal lobe lesions, the change in mentality. So far as we have observed at the University Hospital, there seem to be three types of mental change. One is a mild mental disturbance, in which I might say that the patient seems silly. That is, perhaps, not much more silly than a great many who have not frontal lobe tumors. The second type is more aggravated, and is one in which there is a set of symptoms similar to those in paretic dementia, in which there is mental exaltation, the patients dreaming that they have riches, great power, etc. The third type is one in which the word sullenness describes the mentality. The patients are morose and sullen. These, with the eye symptoms that Dr. Knapp has described, and with the presence of scotoma. make a picture that is very characteristic of frontal lobe tumor. The symptoms are partly ophthalmological and partly neurological.

### Report of a Case of Total Loss of Vision in One Eye and Partial Loss in the Other Completely Relieved by a Sellar Decompression Operation.

Dr. Walter R. Parker, Detroit, Mich.: A male, aged thirty-three years, had gradual loss of vision in the right eye during one year's time, until only doubtful light perception remained. There was slight diminution of the visual acuity in the left eye during three months. Vision 6/7.5. There was also marked quadrantal defect for red and green. A diagnosis of tumor in the region of the pituitary body was made. The Sellar decompression operation was performed, and complete recovery followed.

Dr. C. F. Clark, Columbus, Ohio: I am sorry that I have not here the fields of a case that was quite similar to the one just related, which was also referred to Dr. Cushing, with a similar result. The feature to which I wish to call attention is the fact that the picture showed perceptible outlines of the growth. If I had the plate here, I could show it to you. The patient had had severe headache. He was subjected to antisyphilitic treatment for some time, without result. He was very readily induced to resort to this treatment, and a sphenoidal operation was done by Dr. Cushing. Within five days the man was up, and within six weeks was home and attending to his business. It was startling to me to see what could be obtained by this procedure. Before seeing this case I had no conception of the possibilities of this operation. Dr. Cushing assured me and the physician that had accompanied the patient to his clinic that he had seen a number of cases in which there were similar very prompt recoveries from the operative procedure. The patient has been for six or seven months apparently in good health. He had fields similar to those shown by Dr. Parker.

Dr. J. A. White, Richmond. Va.: If it is not out of order I should like to report a case of relief of blindness by operative procedure on the head. The case does not, however, apply at all to growths of the pituitary gland, but was a decompression. In fact, that operation is still on probation, because we cannot yet know the final results, and we cannot remove the growth alone. We know that we get relief in these cases, but whether the relief is permanent or not, we cannot tell.

In the case to which I refer, a young man called on me on the 17th of April, having recovered a short time before from a bad attack of pneumonia. When convalescent from the pneumonia, he began to have violent headaches and his vision began to fail. When he came to me, his vision was 4/200 in one eye and 7/200 in the other. On examination, I found both disks choked. The history recorded no specific trouble, the Wassermann was negative, urinary analysis was also negative, the blood pressure was 178, and the X-ray showed absolutely no sign of trouble about the head. Several pictures were taken, and there was no indication of a growth about the brain. His vision sank rapidly, and a perimetric examination was not practicable; so I determined that the only safe thing was to do a decompression operation. With the assistance of my friend, Dr. Dunn, I did a large, equal, right-sided, subtemporal decompression. There was a considerable escape of fluid. The day before this operation I had done a spinal puncture, and had found no bacteria in the spinal fluid. Spinal puncture, when there is a growth, is dangerous; and it should be done carefully. We put a small drain at the lower part of the dural opening, and two days afterwards, vision rose to 20/200. Within five days, it had risen to 20/100; then to 20/40; and by the 12th of May, to 20/20. The boy has gone home with vision entirely restored.

I am satisfied that the only thing to do when you have a double choked disk and the diagnosis is obscure, as it was in our case, with no signs of tumor and no focal signs of any kind, is to perform a decompression and relieve the intracranial pressure.

Dr. Allen Greenwood, Boston, Mass.: Dr. Parker spoke to me just before the meeting, and told me that he would like me to speak in the discussion of his paper. Many of you are likely to be working in France, sooner or later, and will find a great many men coming to the base hospitals with a furrow wound of the skull made by high-velocity bullets, some with a large piece of shrapnel impinging on the cranium without perforating the outer table even—and in the majority of the cases you will find a condition inside the inner table that needs operative interference. You may not call it a decompression craniotomy, but it is necessary to perform an operation at the site of the injury. Within a day or two after the reception of the injury, the patients have choked disk coming on with great rapidity, and if nothing is done they have convulsions and go on to a disastrous end. If the ophthalmologist sees these cases, he finds rapidly developing choked disk, which indicates the necessity for an immediate craniotomy or decompression, if you prefer to call it that, and removal of the disorganized brain substance, because, in the majority of the cases, even when the outer table is not scratched, there will be an area in which the inner table is driven for two or three inches into the brain substance. When you open the skull, brownish brain substance bubbles out under pressure. In a few days following the operation, if things go well the choking of the disks disappears. There is very little meningitis following this sort of surgery. It may be an interesting type of work for the ophthalmologist in connection with the brain surgeon, and some of you may be able to bear out these observations.

Dr. J. A. White, Richmond, Va.: May I say another word? One of the most interesting points about my case was the fact that we had made a diagnosis of intracranial trouble, but that it was impossible to tell what it was due to. Of course, it was some obstruction to the outflow of cerebral fluid, perhaps internal hydrocephalus; but the point is that the boy had just recovered from pneumonia, and I should like to know whether anyone has had any experience with the production of this trouble by pneumonia. We have meningitis complicating it sometimes, and a little of that may produce obstruction and hydrocephalus.

Dr. George E. de Schweinitz, Philadelphia, Pa.: May I say a word with reference to Dr. Parker's interesting case? I think that it very excellently confirms previous observations. Of course, we all know that the peculiar pallor of the disk in pituitary-body disease often associated with entire loss of light perception, does not render the prognosis in any way hopeless. I have recently had several cases at Dr. Frazier's clinic—including a man of forty and a woman of twenty-eight, with total loss of sight in one eye, and great impairment of vision in the other. The Sellar decompression in one case, and the spinal root operation in the other, produced restoration in the eye retaining vision, but failed to influence the eye that was totally blind. So although in the one instance there were equal field disks, there was not enough life to wake up again to vision.

I have recently put on record a case of extraordinary restoration of vision, not by operative procedure, but by pituitary-body feeding; and I wish to put on record another case of total blindness with restoration of sight in each eye. The only reason that I refer to these well-known facts is that they illustrate the necessity of being optimistic, even in very uncertain circumstances. The great pallor of the disks and loss of light perception in pituitary-body disease and other cases does not mean that the patient will be blind permanently. They may be restored to sight by operation. We should not be too pessimistic, in view of the late period at which the case is seen. The woman I spoke of was seen after seven years, and she sees as well today as ever. In Cushing's work and in Dr. Frazier's, you will find many permanent cures.

I wish to speak of two premonitory symptoms of pituitary-body disease. One is the long period of blurred vision preceding the scotoma. This is the first symptom, antedating the appearance of scotoma. The other premonitory symptom, which I have seen several times, and which others studying the pituitary bodies have referred to, is the period of awkwardness in the use of the fingers sometimes preceding the development of actual changes in the hands, and sometimes not. The patient says that everything he picks up, he drops. The period of blurred vision before the development of an actual field defect, and the period of awkwardness sometimes preceding for months the actual development of failing vision, are the two most important premonitory signs of this condition.

Dr. Walter H. Parker, Detroit, Mich., closing: I should like to call attention to a point brought out by Dr. de Schweinitz in his previous work regarding the variability of the appearance of scotoma. You can get marked scotoma today, and the following day there will be a marked difference in the shape, and even in the position of the scotoma.

Another point I wish to speak of is the one mentioned by Dr. de Schweinitz, the relation of the color of the disk to the probable chance of restoration of vision. The test given by Dr. Walker, of using different sized disks for the taking of the field, is a very valuable contribution. Irrespective of the color of the disk, you take the fields with different sized disks. If the field enlarges directly proportional to the size of the disk, you have a physiological block. If you have an atrophic condition, the field will be the same, no matter what size of disk you employ.

Dr. Peter A. Callan, New York: One thing that is very interesting is the remark of Dr. Greenwood regarding the way military injuries develop eye symptoms. In my experience, it takes a week following fracture of the skull to show hyperemia of the nerve endings; and ten days or two weeks, or longer, before choked disk occurs.

### A Case of Aneurysm of the Internal Carotid Artery (Intracranial Portion) and Its Effect Upon the Patient's Vision.

By John R. Channon, M. D., New York.

There was no discussion on this paper.

### Trypanosomiasis Keratitis, Being an Experimental Inquiry.

By G. E. de Schweinitz, M. D., Philadelphia, and Alan C. Woods, M. D., Philadelphia (by invitation).

There was no discussion on this paper.

### Five Year's Experience with Iridotasis.

Dr. David Harrower, Worcester, Mass.: Using Borthen's original method, twenty-three operations for chronic glaucoma have been performed, with beneficial results. The field was increased, the tension lowered, and the patient made more comfortable immediately. My original report to the society was made in 1913, and since then, I have had several more cases, whose histories I will relate as illustrative of the good results obtained by this method. I have not tried Borthen's recent modification of buttonholing the iris after pulling it out, because his original operation produced such good effects.

Discussion on this paper was postponed until after the reading of the following, both to be discussed together.

### Report of Case of Late Infection Following the Operation of Iridotasis for Chronic Glaucoma.

Dr. Dunbar Roy, Atlanta, Ga.: Numerous cases of late infection following the trephine operation for glaucoma have been reported. The present case is the only one on record of late infection following the operation of iridotasis. The operation was performed on the right eye of a woman, aged forty-nine years, July, 1912. A year later, iridotasis was performed on the left eye for chronic glaucoma. On January 22, 1917, the right eye was enucleated for panophthalmitis evidently due to infection through the seat of operation. The eye was examined by Dr. Verhoeff.

*DISCUSSION ON THE IRIDOTASIS PAPERS OF DRS. HARROWER AND ROY.*

Dr. C. F. Clark, Columbus, Ohio: I should like to know what Dr. Harrower's experience has been with regard to friability of the iris, and also whether he uses atropin before the operation.

Dr. Arnold Knapp, New York City: During the past year, we have performed 22 operations of iridotasis at the hospital; and while the tension was reduced for a number of weeks, in only 6 of the 22 were we able to obtain a permanent reduction in the tension. It seems to me that this difference of results is due to two causes: First, the material selected was not the same; and second, an error in technique on our part. I selected the most difficult cases I could get—cases that had resisted other operations, and cases that were the worst forms of glaucoma that we met. The operation is simple—but I think that probably our technique is not just what it should be. It is difficult to tell just where the iris is to be grasped and how far out it should be drawn. It seemed to us that if we seized the iris at the junction of the middle and inner third, it seemed, in certain cases, to have a tendency to form a valve. To circumvent that difficulty, we have preferred to make an incision into the iris tissue, so as to flatten out any folds. If we pull out the iris sufficiently to see distinctly the uveal surface on the posterior side, we have drawn out enough to keep it from drawing in again.

I should like to ask Dr. Harrower whether it is necessary to split the iris.

Dr. W. H. Wilder, Chicago: I have always been very skeptical about this operation, and every time I did it, I did it with considerable reluctance. Yet I must say that I have never done an operation for glaucoma in which the reaction was less, the healing more prompt, and the result that could be obtained more gratifying, with one exception, which I shall mention. Notwithstanding the results I have had, I am still, I must say, more or less of an agnostic with regard to this operation. I have recently had an experience with it that showed me that I am not yet fully acquainted with the technique. The case was one of acute glaucoma, occurring in the fellow eye, after I had done a trephining operation for the same condition in the first. I resolved, in that case, to do an iridotasis on the left eye. The operation was done in the way that I have usually performed it, and was done very easily. I made a very small incision, as usual, and was very sure that in drawing out the iris I saw the uveal structure and pigment. The result was beautiful for three or four days, and then this lady had the most violent attack of acute glaucoma that I have ever witnessed. I might say, in passing, although it is somewhat irrelevant to the subject in hand, that the tension was so high (about 70 mm.) that we did not dare to open the eye again without making attempts at reduction of the tension. This was accomplished by intravenous injections of glucose, lasting one hour, as published by Woodyatt and some of his co-workers. Then an iridectomy was made. If you ever have occasion to do an iridectomy after an iridotasis, you will wish that you had not done the iridotasis before, because it makes a very ugly wound. The result of this operation gave the woman 20/100 vision. I cannot explain the result after the first operation.

The next point I wish to speak of is the question of whether or not to enucleate an eye with absolute glaucoma. The question arose as to whether to enucleate an old blind eye, and the patient, although an old lady of seventy, was horrified at the thought of losing the eye. Therefore, I resolved to try, before doing the enucleation, this operation of iridotasis. I did it, and within twenty-four hours, the iris slipped back partly into the anterior chamber, so that we may now see in her eye only a slight peripheral bubble with the apex upward, where the incision was, but no true filtration bleb. I think that the reason it slipped back was that the cornea was so thin that when I made the incision it was too large for such a thin cornea. I never saw a more beautiful result in my life. The absolute glaucoma disappeared, the congestion of the eye disappeared, she has had no pain in it since, and the tension was normal when last examined; so I was gratified with the result, in spite of the fact that the iris slipped back. There is still some tension on the iris, I think, which brings about the desired result. I believe that the good result came, not so much from the tasis feature, the stretching of the iris, as I understand it, and therefore the enlargement of the anterior chamber, as from the fact that we did get a sinus there, which drained the fluid into the subconjunctival tissue.

Dr. David Harrower, Worcester, Mass., closing: With regard to Dr. Clark's question, I think that the second case spoken of that I had trouble with in my previous report of cases was due to friable iris, and that I tried several times to pull the iris out, and it kept breaking off. In that case, I found a little piece that was possibly in good condition; and, two or three days afterwards, when the tension began to rise, I did an iridotasis and got this little point that pulled out into the wound without breaking. The man was blind in that eye, but he recovered with a comfortable eye. Six months afterwards, his eye was still very comfortable. I have not seen him since.

With regard to Dr. Knapp's question, I would say that the material selected by us was much better than his. We do not get any of the poor, miserable, half-starved people that I see when I go to the New York clinics, and I think that this may have a decided bearing on the result that is obtained, not only in this operation, but in others. You see the wonderful results that they do get in New York with the material they have.

The iris should be grasped as near the margin of the pupil as possible, and should be pulled into the wound far enough to make you pretty sure that you are going to have enough to hold. I had rather have a large than a small piece. Only in one case did I have the iris slip back, but I got it again. The reason it slipped was because I had such a small hold on it that it could not be fastened firmly.

I always use atropin before the operations. I think that is very important, and Borthen, in his article, lays great stress on keeping the iris as quiet as possible.

With regard to Dr. Wilder's remark about bleb, I would say that I think it is practically the whole thing to get a good filtration bleb, because, in the case that I reported with improvement and stretching of the iris, neither the vision nor the tension improved until the bleb appeared, but when the bleb appeared, both the vision and the tension improved.

Dr. G. Oram Ring, Philadelphia, Pa.: Before Dr. Harrower sits down, I wish that he would tell us the advantages of the later modification of this operation by Borthen.

Dr. Harrower (continuing his closing remarks): I do not know what the special advantage of Borthen's modification of his original iridotasis operation is, as he has had as good results from his older method. He pulls out the iris and makes a small buttonhole there. Otherwise, the operation is the same as the original procedure. What the advantage in the buttonhole is, I do not know.

So far as splitting the iris, which Dr. Knapp spoke of is concerned, I do not know what good result that would have.

Dr. Dunbar Roy, Atlanta, Ga., closing: I should like to say a word about the operation with reference to my paper; and that is, that in 1914, I wrote to Borthen, and received in reply a nice letter from him, in which he expressed an idea that showed he did not then stand on the same line as Dr. Wilder. He said that he considered that all the results were due to stretching the iris and the opening of the space of Fontana, and not to filtration. There is only one class of cases that you cannot use this operation with, and that is the class composed of those people with old glaucoma, in which the iris is thoroughly atrophic and degenerated, so that you cannot get the iris out except piecemeal. You cannot use the operation of iridotasis in these cases, but, on the other hand, you cannot use any other, so you probably do as much with iridotasis as with any other procedure.

There were two mistakes made by me in these operations. If they had been correctly done, probably the bad subsequent result would not have occurred. That is, a suture should be used. I did not use it at first, but I think that it is better to use this suture at the center of the conjunctival flap, because it gives a good, firm attachment of the conjunctiva where the iris has been pulled out, and renders it less open to infection. The other mistake was in making too wide an incision. If you do this, you are apt to get too much iris, and that will allow it to drop back. I made the incision just large enough to get a small pair of iridectomy forceps in and open them just a little, so that I can catch the iris at the pupillary margin. Then, when the iris is brought into the wound, it is not more than three heads of a pin in size. Then the suture is put in. I use it in both acute and chronic cases. You will recall that Dr. Harrower spoke of using it only in the chronic. I have employed it in the acute with better results than those from any other operation. In one, a few days ago, the patient went back home in four days, and in all the cases operated on, the relief from pain, reduction of tension and increase of vision were great. The results have been entirely satisfactory, except in the case of secondary infection that I reported today.

### Glaucoma as a Result of Herpes Zoster Ophthalmicus, with Reports of Cases.

Dr. John E. Weeks, New York City:—The character of the aqueous humor's changes in all cases of congestion or inflammation of the uveal tract, from whatever cause, is of a great deal of importance. In a case of glaucoma secondary to tuberculous uveitis, for instance, the writer obtained a decidedly positive test for globulin in the aqueous. Since my cases occurred in elderly individuals, in whom the anterior chamber was approximately two-thirds of its normal depth, it is probable that the lymph-space at the filtration angle was only large enough to take care of the normal outflow, although none of the patients had had any increase in tension before. When substances were added making the aqueous cells diffusible, an increase in tension was produced.

The three cases were instances of monocular glaucoma. The first was one of congestive glaucoma of the subacute type, complicated by herpes corneae. The second was a case of intermittent congestive glaucoma of moderate severity. The last was one of acute glaucoma. In all the cases, the nasal branch of the fifth nerve was involved. Operation was performed in all three cases because of the continued reduction in vision, and the persistence of other symptoms. The result was a cure in each instance.

Dr. T. Y. Sutphen, Newark, N. J.: I do not know that Dr. Weeks and I have a monopoly in these cases. Miss C., a trained nurse, came to see me on May 11th, of this year, for pain in and above the left eye, and on the left side of the head. She said that she had had herpes on that side of the face for two weeks. As the eye appeared normal, though slightly irritated, the trouble was attributed to a foreign body that had been removed from the conjunctival sac. On May 21, 1917, she returned, and said that she had suddenly lost vision in that eye, which was found glaucomatous, the anterior chamber shallow, and the tension increased. The patient was treated with eserin and hot compresses locally, and sodium salicylate internally. Two days later she had vision of fingers at ten feet. On May 24th, the vision was 20/30, the cornea being clear except the nasal quadrant, which presented a rather peculiar appearance. The cornea had been more intensely hazy on the nasal side from the beginning, but gradually it grew clearer, leaving a streak of gray cornea towards the nasal side. The pupil contracted, but the tension was still too high. The patient was so much better that I determined to continue the treatment. When I saw her on Saturday morning last, the tension was normal, vision 20/20, with correction of one diopter of hyperopia. The eye, however, was a little red, suggestive of iritis. It was a question in my mind whether I had not used the eserin a little too long, so I gave her pilocarpin instead, before leaving.

Dr. Greenwood showed some lantern slides of the base hospitals at Boulogne and Etaple, France, with which he had been connected.

# CORRESPONDENCE

## OPHTHALMOLOGISTS IN GOVERNMENT SERVICE.

The work of establishing units for the examination of candidates for the Aviation Section of the Signal Corps, U. S. A., is proceeding satisfactorily. Major I. H. Jones, M. O. R. C., is in charge of this work, and the following centers with the officers in charge are already established:

Atlanta, Ga., Lieut. Dunbar Roy.
Boston, Mass., Lt.-Col. Geo. H. Crabtree.
Chicago, Ill., Maj. Casey Wood.
Detroit, Mich., Lieut. G. E. Frothingham.
Ithaca, N. Y., Lieut. S. A. Munford.
Minneapolis, Minn., Capt. F. E. Todd.
New York, Lieut. J. D. Richards.
Omaha, Neb., Capt. E. R. Lewis.
Philadelphia, Pa., Maj. I. H. Jones.
St. Louis, Mo., Lieut. Harry Lyman.
San Francisco, Cal., Lieut. Henry Horn.
Washington, D. C., Lieut. Wm. F. Patten.

As soon as practicable additional centers are to be established at Cincinnati, Ohio; Cleveland, Ohio; Denver, Col.; Buffalo, N. Y.; Kansas City, Mo.; Memphis, Tenn.; Richmond, Va.; and elsewhere.

In the Chicago center the method of procedure is so systematized that the single unit has been able thus far to take care of all applicants sent to it, without difficulty.

The number of applicants examined during the first month was about 575. This does not include some twenty or thirty re-examinations which have been made because of some unsatisfactory conditions found at the time of the first examination. With the unit thoroughly organized and systematized the daily average of examinations is about thirty-five, and this means every day in the week except Sunday.

The examinations begin shortly after nine o'clock in the morning and continue through the day, with an hour at noon for luncheon. The eye examination is conducted by Maj. Casey Wood, assisted by Lieut. C. P. Small and Drs. Frances Lane, E. W. Regan and N. C. Bulkley. Maj. Norval Pierce supervises the ear, nose and throat examinations, and the different equilibrium tests. He is assisted by Drs. A. A. Hayden and A. Lewy. Lieut Eugene Cary is in charge of the general physical examination, and Drs. Warren Johnson and Shipman attend to the laboratory examinations. Volunteers from the Red Cross are doing much of the clerical work.

Ophthalmologists from other cities, who are expecting to do this work in their own localities, are almost daily visitors at the Infirmary for the purpose of becoming acquainted with the methods of examination. It is the intention of the government to have a uniform standard, and, so far as possible, a uniform method of examination throughout the whole country, and to have the examinations completed as rapidly as is consistent with efficiency.

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The American, British, French and Belgian Permanent Blind Relief War Fund for Soldiers and Sailors, with headquarters at 590 Fifth Avenue, New York City, have been carrying on a campaign to raise money to assist in the rehabilitation of the men who have lost their sight in the war. As with all other such organizations, local branches have been established in many cities. The National committee includes the President of the United States, and many other men and women of prominence throughout the country. The British, French and Belgian sections have as their patrons Their Majesties the King and Queen of England, the President of France and the King and Queen of Belgium.

This Fund aims at providing the means for the economic rehabilitation of these blinded heroes; first, by training them in such handicrafts as experience has shown can be readily acquired by the blind: *e. g.,* carpentry, mat-making, basket-making, weaving, mattress-making, chair-caning, typewriting, massage, telephony, poultry-raising and market-gardening; secondly, by furnishing them with raw material and marketing their goods.

Six months' training is, as a rule, sufficient to teach the blind their new occupations, the cost per capita being approximately $250.

The number of the blinded victims of the war is increasing day by day; and, therefore, it will be impossible to estimate the maximum needs until the war is over. Obviously, however, a very large endowment fund is essential to cope with the magnitude of the task. Up to the month of May last, $446,000 had already been raised, which sum is being supplied intact to the objects stated, all expenses being met from other sources than public subscriptions.

## AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS

The board held its second examination at New York, June 7th and 8th. The board owes its existence to the joint action of the American Ophthalmological Society, the American Academy of Ophthalmology and Oto-Laryngology and the Section on Ophthalmology of the American Medical Association. Three representatives from each of these organizations constitute the board, and no one can serve more than two terms consecutively. Thus the board is neither self-constituted nor self-perpetuating.

The purpose of the board is to establish higher standards of ophthalmic practice and of ophthalmic teaching.

The examination of each condidate consists of three parts: (1) Examination of his record, including his general medical and special ophthalmic training, his hospital and private practice, contributions to ophthalmology, etc. This may be so satisfactory to the board that further examination is waived. It has been supposed by some that mere years of experience and successful practice would satisfy the board, but this is not so. A man may be highly competent and successful and yet not have chosen to take such active part in ophthalmic societies, in writing, teaching or the like, as to become generally and widely known to his fellow ophthalmologists as such. It is not easy to draw a definite line, and no one should feel it an injustice to be asked to give evidence of his fitness if he seeks the certificate of the board.

(2) Examination of a series of ten case reports handed in by each candidate two months before the final examination.

(3) Practical, clinical and laboratory examination.

Examinations are held two or more times a year. The examiners at any given examination are not necessarily members of the board, but are selected for the occasion by the member of the board who has charge of that particular examination subject to the approval of the board. The examiners report their findings to the full board, who decide on the results.

The recent examination in New York was under the charge of Dr. W. B. Lancaster, and the examiners were:

Refraction: Drs. Edward Jackson and E. E. Ellett.

Ophthalmoscopy: Drs. Wilder, Ward A. Holden, and T. A. Woodruff.

Pathology and Anatomy: Dr. Weeks and Dr. Dixon.

External Examination of the Eye: Drs. Hiram Woods, Allen Greenwood and T. B. Holloway.

Perimetry: Drs. Luther Peter and John R. Newcomb.

Ocular Muscles: Drs. White, Hubbard, W. W. Weeks, John M. Wheeler.

Relations to Other Diseases: Dr. Myles Standish.

Therapeutics: Dr. de Schweinitz.

## MOVIE SPECTACLES.

As if to verify a statement recently made in our editorial pages to the effect that oftentimes optical inventions have been made by persons who are not opticians, comes to us this month the story of how the Movie Spectacle was invented. Its inventor is Dr. F. C. A. Richardson, a scientific and review writer formerly connected in an editorial capacity with one of our big New York City daily newspapers.

One day he was assigned to investigate and write up the motion picture field along a scientific and psychological view.

To get material for his work he spent several months going to all sorts of movie shows, and the first thing he knew he found himself suffering severely in his vision, which he attributed to the flicker of the films. He visited oculists and optometrists to get aid for himself, but still he could not neglect his work of viewing the films for the sake of the article he was writing.

In this way he evolved the idea of the old stenopaic principle for the spectacle with which to view the movies. He made the first pair himself, crudely out of hard rubber, and its beneficial effects were so quickly apparent that he communicated his ideas to others with the result that a company was formed to manufacture the spectacles on a commercial basis. It was Dr. Richardson's idea and also of those who put up the money to place the article on the market, to produce a spectacle that would sell at a popular price, with the idea of benefiting, first of all, the poor people who are the greatest patrons of the movie houses. The rising cost of the materials prohibited for the time being making an article for less than 50 cents at retail, but already these spectacles have found a ready market.

The Stenopaic Optical Co., 437 Fifth Avenue, New York City, are the manufacturers and are selling to the jobbing trade, but will answer all inquiries.

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New York, N. Y., May 4, 1917.

The Editor,
Ophthalmic Record,
7 West Madison St.,
Chicago, Ill.

Dear Sir:—

I hand you herewith a reprint of an article that has just appeared in the *Optometrical Record.*

Several of my friends have suggested that, since your magazine is looking for scientific facts of news value, and of benefit to the people, I forward this data to you, hoping that you may be able to make use of it.

Since this article was written, the spectacles have been tried out and found to be highly efficient for other purposes than just the "movies." Pilots along the coast have found that they are able to see a greater distance and far more clearly on a bright moonlight night, or a very sunny day, using the spectacles than they could without.

Several of the captains of the large liners who have tried the spectacles are quite enthusiastic and claim that they can keep a better lookout, without feeling the effects of the blinding rays of the sun on the water. It is an established fact that, by using the spectacles, one can see a much greater distance and far more distinctly than without them, although the principle is not one of magnifying, the same as in a telescope, but the eye receives only the direct rays, rendering the view more distinct.

The United States Government has made a number of tests in every direction, on the firing lines and in the aviation field, and the efficiency of the marksmen is very appreciably increased by the use of these spectacles. Moreover, the man using the gun can face the sun and obtain a good sight within two degrees of looking at the sun, which would be almost impossible otherwise. These spectacles do not in any way change the color of objects.

While the principle is old, the application is new and has not been used or investigated to any great extent along the new lines that the spectacles seem so well adapted for.

I am enclosing with this article a pair of spectacles, so you may be able to test out these facts to your satisfaction. If this subject is interesting to you further, I shall be very glad indeed to give you any additional facts or information that present themselves to you.

Please let me hear from you.

Yours sincerely,

F. C. A. Richardson, M. D.

## THE PROPOSED MERGER JOURNAL.

It is pretty well understood through leading articles in *Ophthalmic Literature* and by references to the subject in the Ophthalmic Record, in the Introduction to the Eye and Ear Volume for 1917 of the *Practical Medicine* Series and elsewhere that a movement is on foot to consolidate the principal American ophthalmic journals into one large monthly periodical devoted to all the interests of ophthalmology, domestic and foreign. Such a journal would contain the matter now published in the *Archives of Ophthalmology*, the *Annals of Ophthalmology,* the Ophthalmic Record, *Ophthalmology*, *Ophthalmic Literature,* and the *Ophthalmic Year-Book*.

The scheme also includes the services of the editors of these periodicals and their most active collaborators. The new journal will thus have for its Editorial Management the most practiced literary talent in the country, and will be able to combine, without wasteful duplication, the best and latest contributions to ophthalmic science at the lowest possible market rate. In its next (September) issue the Ophthalmic Record expects to furnish full details of the scope, probable size, subscription price, date and place of publication, editorial and business management of the new journal, together with other announcements regarding this most desirable combination.

C. A. W.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 25 E. Washington, St., Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

At the annual meeting of the Toronto Academy of Medicine, held on May 10th, Dr. D. J. Gibb Wishart, an ophthalmologist of that city, was elected president.

Among recent appointments in the Canadian Army Medical Corps, we note that of Dr. J. D. Courtenay, temporary colonel, as officer commanding Canadian Special Eye and Ear Hospital.

"At the annual meeting of the American Laryngological Rhinological and Otological Society, at Atlantic City, Dr. F. R. Spencer, Boulder, Colo., was elected Vice-President of the Mid-Western Section."

Dr. John W. Earel, formerly of Quincy, Ill., who has been for the past year recreating in the South, has received a commission as First Lieutenant in the Medical Officers Reserve Corps, U. S. A.

The Oxford Ophthalmological Congress met on July 12-13. The first day was devoted to discussions on "The Correction of Errors of Refraction," by Dr. George M. Gould, of Atlantic City, N. J.

The ninth semi-annual session of the Sioux Valley Eye and Ear Academy was held in Omaha on July 16. The guest of the meeting was Dr. Flavel B. Tiffany of Kansas City, who gave an address.

Owing to the over-crowded condition of the Naval Medical School at Washington, D. C., Rear Admiral Braisted has opened a six weeks' intensive course at the Jefferson, the Naval, the Medico-Chirurgical, and the Philadelphia hospitals. Dr. W. W. Hawke is the instructor in ophthalmology.

"An ophthalmologist can cope with eyesores of the great and mean when armed with an ophthalmoscope and atropin."

It is announced that Professor Bernheimer has been appointed to succeed Professor Fuchs in charge of the Vienna Clinic.

Lieutenant-Colonel E. S. Ryerson, C. A. M. C., has been appointed A. D. M. S., of the Toronto Military District in succession to Colonel Marlow.

Dr. Roy Bartlett Metz has been promoted to an associateship in ophthalmology, in the School of Medicine of Western Reserve University.

Dr. Alexander S. Rochester of Chicago, has been obliged on account of ill-health to discontinue his practice temporarily, and will spend the summer in California.

The Council of National Defense, through its sub-committee on ophthalmology, has sent to ophthalmologists throughout the country, blank forms containing twelve questions with regard to qualifications and desirability of accepting service in the Army or Navy as an ophthalmic surgeon, if the government so desires.

The New York Institute for the Education of the Blind has acquired a new 18 acre site, fronting on Pelham Parkway, Williamsbridge Avenue, Astor and Bronxwood avenues. It is estimated that the cost of the group of buildings to be erected on this site will approximate $1,000,000.

The optical industry is evidently determined to be in the front ranks of those doing their bit in the present emergency. Among the activities in this direction we learn that a Bunco Party, given by F. A. Hardy & Co.'s unit of the Daughters of the American Flag, was held on the evening of June 14, by the members of the society and their friends. The organization has for its object the making of clothes and the like which will be sent to the war sufferers in France.

An order issued by the British Minister of Munitions, requiring all manufacturers of artificial human eyes to immediately return all stocks and materials, would seem to imply that there is an increasing number of eye enucleations from war injuries, or else that the present output of artificial eyes is of faulty make.

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The University of Minnesota has established Special Fellowships in Ophthalmology and Oto-Laryngology. These fellowships carry the same stipend that is paid to University Fellows, viz., $500.00 the first year, $750.00 the second year, and $1000.00 the third year. For the work done in clinics, credit will be given towards the degree granted by the University in the course of Ophthalmology and Oto-Laryngology to accepted Doctors of Medicine, covering a period of three years.

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The Supreme Court of Illinois at the June Session declared the Optometry Act of Illinois unconstitutional. This decision of the court is in line with its holdings in later years, that the practice of new and special professions will not be countenanced, unless a genuine standard is fixed to which applicants must conform, creating a valid branch of scientific learning not only in name but in fact. The medical profession is to be congratulated upon the virtual elimination of one of the "new professions," the intent of the sponsors being to impose a limitation on the field of legitimate medicine and surgery.

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The Federal Committee of the British Medical Association in Australia, at its meeting held on April 25 and 26, 1917, determined that the registration of opticians as sight testers was detrimental to the interests of the public. The British Medical Association in Great Britain and the Ophthalmological Society of the United Kingdom arrived at the same decision several years ago. The members of the Tasmanian Branch of the British Medical Association do not assent to this view. They are of opinion that a medical practitioner who practices as an ophthalmic surgeon would be in a position to limit the danger of the measure to some extent, by exercising vigilance over the qualifications of persons seeking registration.

The Illinois Department of Public Health in co-operation with the Illinois Society for the Prevention of Blindness, is distributing illustrated leaflets on the prevention and treatment of babies' sore eyes. Prospective mothers are advised as to what they should do before the baby is born, and instructed how to apply the preventive treatment to the baby's eyes as soon as it is born, etc.

The optical profession and industry in New England contributed $200,000 to the Liberty Loan, according to a report made by Briggs S. Palmer, president of the J. W. Sanborn Company, to the general committee for all industries in New England. Eleven hundred and eighty-five employes of the Wellsworth Works of the American Optical Co., of Southbridge, Mass., purchased $72,800 worth of the bonds, and in addition to this have contributed $3,789.65 to the Red Cross.

The following members of the Ophthalmological Society of the United Kingdom have been elected as officers for the year 1917-1918: President, E. Treacher Collins; Vice-Presidents, F. Richardson Cross, A. Maitland Ramsey, Sydney Stephenson, and A. Lawson; Treasurer, James Taylor; Council, Gordon Holmes, J. Craig, H. L. Eason, A. H. H. Sinclair, R. R. Cruise, and J. F. Cunningham; Secretaries, M. S. Mayou and S. A. K. Wilson. This society has under consideration a scheme to have affiliated with it all other ophthalmological societies throughout the Empire.

A notice has been sent out warning the public against an impostor giving the name of Doctor Schultz, who has his headquarters in St. Louis, and who is selling a lotion called Arabian Balm. The so-called Doctor Schultz saturates a cloth with this Arabian Balm lotion and applies it to the patient's eyes. Suddenly removing the cloth, a blossom appears on same, which he says is taken from the patient's eyes. This imposter charges anywhere up to $90 for this treatment. He also removes the lenses from the mountings of his patients and inserts a cheap lens in their place.

## OBITUARY.

Dr. Charles Guy Reilly, Los Angeles, May 26. Age, 58.

Dr. Addison C. Posey, Hanford, Cal., May 31. Age, 68.

Dr. Edward M. McCabe, New Haven, Conn., June 7. Age, 53.

Dr. Samuel R. Robinson, Sturgis, Mich., June 13. Age, 65.

## ABROAD.

Professor Haltenhoff, of Geneva, age 72.

Francesco Francanviglia, a well-known Sicilian ophthalmic surgeon, age 74.

Dr. Menacho, of Barcelona, Editor of the *Archivos de Optalmologia Hispano-Americanos.*

Julien Masselon, for the whole of his professional life *chef de clinique* to de Wecker.

Nicolo Manfredi, age 80. A list of his contributions, twenty-nine in number was published in the February number of *Annali di Ottalmologia e Clinica Oculistica.*

Deaths of the following German ophthalmic surgeons have been announced: Professor Ulrich, age 67; Professor Schmidt-Rimpler, age 77; Professor Birnbacher, age 64; and Professor Stilling, age 73.

## NEW BOOKS

**The Causes of Tuberculosis** together with some account of the Prevalence and Distribution of the Disease. By Louis Cobbett, M. D., F. R. C. S., University Lecturer in Pathology, Cambridge, England. Cambridge, at the University Press, 1917.

**Glaucoma.** A handbook for the peneral practitioner, by Robert Henry Elliot, M. D., B. S. Lond., Sc. D. Edin., F. R. C. S. Eng., etc. Lieut.-Colonel I. M. S. (retired); late Superintendent of the Government Ophthalmic Hospital, Madras; late Professor of Ophthalmology, Medical College, Madras, and late Fellow of the University of Madras; Honorary Fellow of the American Academy of Ophthalmology and Oto-Laryngology. 8vo cloth; 6 plates, 23 illustrations. $1.50 net. Paul B. Hoeber, Medical Publisher, 67-69 East 59th Street, New York.

# CHICAGO EYE CLINICS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 A.M. | Richard S. Pattillo (P.-G.)<br>G. W. Mahoney (Poli.)<br>R. B. Stephenson (P.-G.)<br>Carl Wagner (E.E.N.T.) | *Geo. F. Suker (P.-G.)<br>C. H. Francis (Poli.)<br>A. Duncan (P.-G.)<br>A. G. Wippern (E.E.N.T.) | W. F. Coleman (P.-G.)<br>S. M. Hager (Poli.)<br>H. N. Lyon (P.-G.)<br>Carl Wagner (E.E.N.T.) | G. W. Mahoney (Poli.)<br>Rich'd S. Pattillo (P.-G.)<br>R. B. Stephenson (P.-G.)<br>A. G. Wippern (E.E.N.T.) | C. H. Francis (Poli.)<br>R. B. Stephenson (P.-G.)<br>J. A. Cavanaugh (E. E. N. T.) | S. M. Hager (Poli.)<br>C. W. Hawley (P.-G.)<br>H. J. Morlan (P.-G.)<br>A. G. Wippern (E.E.N.T.) |
| 10 A.M. | Brown Pusey (N.W.U.)<br>Geo. T. Jordan (N.W.U.)<br>Robert Blue (N.W.U)<br>Every day, 10-12 A. M.<br>Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) |
| 1 P.M. | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>E. V. L. Brown (County) and Geo. F. Suker (County) Daily, 2:30 P. M.<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffmann (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensobn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>Oliver Tydings (E. E. N. T.) | W. Allen Barr (Inf.)<br>*Frank Allport (St. Luke's)<br>*Frank Brawley (St. Luke's)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>*PaulGuilford (St.Luke's)<br>*Casey Wood (St.Luke's)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>H. W. Woodruff (Inf.)<br>W. A. Fisber (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>Oliver Tydings (E. E. N. T.) |
| 3 P.M. | *Wm. E. Gamble (U. of I.)<br>Wm. H. Wilder (Rush)<br>H. S. Gradle Daily 3-5 (E. M. D.) | R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.)<br>*Wm. E. Gamble (U. of I.) | Wm. H. Wilder (Rush)<br>R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.) | Geo. F. Suker (P.-G.) 2-5<br>H. Cuthbertson<br>A. Duncan |
| 4 P.M. | W. F. Coleman (P.-G.)<br>H. N. Lyon (P.-G.) 2-5 | C. W. Hawley (P.-G.) 2-5<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | J. B. Loring (U. of I.)<br>E. K. Findlay (U. of I.)<br>G. F. Suker (P.-G.) 2-5<br>H. Cuthbertson (P.-G.) | C. W. Hawley (P.-G.)<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | W. F. Coleman (P.-G.) 2-5<br>H. N. Lyon (P.-G.) | |

*Special operative eye clinic.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 1844 W. Harrison Street.

E. M. D.: Emanuel Mandel Dispensary, 1012 Maxwell St.

County: Cook County Hospital, W. Harrison and Honore Streets.

Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.

M. H.: Mercy Hospital.

Poli.: Chicago Policlinic and Hospital, 221 W. Chicago Avenue.

P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.

N. W. U.: Northwestern University, 2431 Dearborn Street.

Rush: Rush Medical College, W. Harrison and Wood Streets.

St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

U. of I.: College of Medicine, University of Illinois, Congress and Lincoln Streets.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXVI CHICAGO, SEPTEMBER, 1917 No. 9, New Series

# RECURRENT NEUROEPITHELIOMA.*

BY

G. ORAM RING, M. D.
PHILADELPHIA.

The purpose of this brief communication is to record the history of a tragic little case in which the note of warning sounded at an initial visit was totally disregarded by the parent. The patient immediately visited another clinic, at which excision of eyeball was not performed until about seven months had elapsed. The child was dismissed as cured in two weeks after enucleation, and no pathologic examination of the eyeball made.

Six weeks after enucleation the writer personally saw the patient for the first time; regarded an extensive recurrent orbital growth as inoperable by ordinary surgical means, and exhibited the case before the Ophthalmic Section of the College of Physicians of Philadelphia.

Electrothermic surgery was then considered as a last resort, consultation sought with Dr. William L. Clark, and a method evolved by means of which an enormous malignant neoplasm nearly half the size of the child's head was removed at a time when collapse seemed impending, which removal prolonged the child's life approximately six months, with marked improvement in general physical condition up to the period of a spinal metastasis, of which the writer was not immediately advised, as it was regarded by the family physician as probably rheumatic until paralytic symptoms developed.

Esther K., aged eight years, visited the ophthalmic clinic of the Protestant Episcopal Hospital on January 7, 1916, following a trauma to the left eye, the accident and not the primary condition constituting the reason for seeking relief.

The advice given by Dr. Hopkin, senior member of my dispensary staff, was immediate admission to the hospital for further study and probable enucleation. The failure to accept the advice given resulted in passing of an opportunity at our hands of early intervention that might have ranked the case as one of the 13 per cent of recoveries of the so-called gliomata, or, in the later phrasing of Flexner and Wintersteiner, of neuroepitheliomata.

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*Read before the American Ophthalmological Society, May, 1917.

The mother never observed any difference in the child's eyes until December, 1915, when she was accidentally struck in the left eye with a potato. Treatment for three weeks was given by the family physician, at the end of which time the appearance volunteered by the parents as suggesting a "cat's eye" caused advice to be sought. Hospital notes are as follows: V. O. D.=20/16; O. S.=12/200. Right eye is in all respects normal. Left eye, eyeball white, iris responsive but tremulous. The lens is dislocated up and in—partly covered with exudation from the ciliary body. The lower half of the retina is detached; two whitish areas of degeneration beyond the outer edge of the disc are present; the irregular retinal elevation, suggesting a solid background, but patient extremely irritable and difficult to examine. Efforts to transillumine were not successful. Tension about normal. No dilated capillary vessels could be detected upon the surface of the elevation.

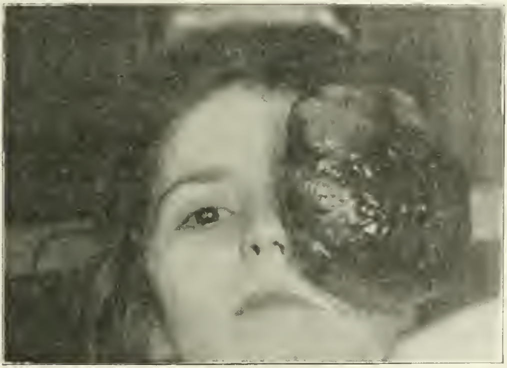
*Diagnosis.*—Traumatic lenticular dislocation; retinal detachment; probable glioma; advice given: immediate admission to hospital for further study and probable enucleation.

At the second institution visited the condition was thought to have been originally a pseudoglioma, but within two months enucleation was advised. Visits were said to have been irregular during the spring and summer months, and according to the mother the eyeball began to enlarge during April.

While at play with a little companion on August 8th the latter ran toward the patient, striking her head violently—a sort of left-sided head-on collision, causing the left eye and eyelids to become greatly swollen. Immediate relief was now sought at the dispensary where the child had been previously in attendance, when it was found the eyeball had ruptured. Enucleation was performed. Healing was apparently prompt, and the child was dismissed in nine days. The hospital was visited regularly for two weeks, when an artificial eye was suggested. Unfortunately, no histologic examination of the eye was made at that time. One week later, or about one month after the enucleation, that is to say, early in September, recurrence in the orbit was said to have been noted.

The latter part of October the writer saw the case for the first time upon its having been admitted to his service at the Episcopal Hospital, with an extensive recurrent growth filling the entire orbit and projecting from it, with pressure and infiltration into the lids. It grew with great rapidity, and when exhibited before the College of Physicians, presented an appearance somewhat smaller than indicated upon the photograph. The anterior surface was ulcerated, bled easily each time the dressing was removed, and emitted the characteristic disgusting odor of necrotic tissue.

It was not possible to make a complete sinus examination, but as nearly as could be determined by Dr. Biedert and myself it was negative. There was some slight enlargement of the lymphatic glands of the neck. General physical examination was negative. A portion of the eyeball was ultimately found and placed at my service, and the report made by Dr. C. Y. White, director of the laboratory of the Episcopal Hospital, was that the growth was typical neuroepithelioma.



Recurrent neuroepithelioma before operation.

After a perfectly frank explanation of the hopelessness of the condition was made to the parents, an explanation which pointed out the entire likelihood of metastasis being already present, although no clinical symptoms seemed evident, it was decided to attempt destruction of the growth by an electrothermic procedure, which, so far as is known, was used for the first time in such a condition. As the electric facilities of the Episcopal Hospital did not include the high-frequency apparatus, the child was temporarily admitted, through the courtesy of Dr. Dorrance, to St. Agnes' Hospital, where the operation was performed by Dr. Clark, November 27, 1916. The instrumentation and technic are entirely due to the resourcefulness of Dr. Clark, and the details of the method are from his pen:

"The current employed was the bipolar d'Arsonval, obtained from a one-half k. w. transformer, which was devised for the production of the various high-frequency currents. The current strength employed was 2000 to 2500 milliamperes. The active electrode used in the first stage of the operation was a chain snare, formerly devised for pedunculated uterine fibroids. The passive electrode was a brass disc three inches in diameter, which was placed on top of the growth and pressed in place by an attached handle to insure a good contact. A No. 27 copper wire was fastened to the metal handle of the snare by means of a strip of adhesive plaster, and a heavier insulated wire attached to the handle which held the disc electrode. Four thicknesses of rubber dam were drawn over the growth and engaged the pedicle, for the purpose of protecting, as far as possible, the skin of the cheek, nose, and brow. After the snare approximated the pedicle and the disc electrode was in place, the current was regulated to the proper intensity, and as coagulation took place at the points of contact the snare was gradually tightened until, after about ten minutes, the growth was separated flush with the orbit without appreciable loss of blood.

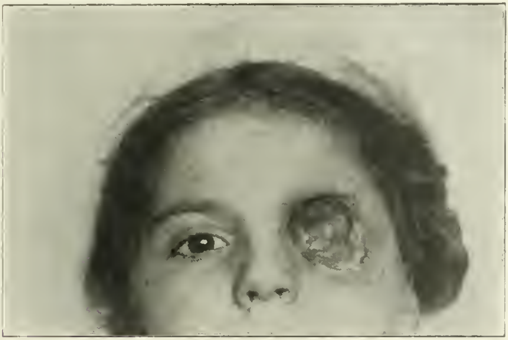
"The second stage of the operation, in which much of the growth in the orbit was removed, was accomplished by a different technic. The same current was used; the active electrode was a knitting-needle cut to a suitable length (four inches), and the passive electrode, which consisted of moistened asbestos with a metallic cover, was placed on the back of the patient, both connected by ordinary insulated wire. Much of the growth in the orbit was curetted away after coagulation by the current, but not all, as it was not considered prudent to remove it all at that time on account of the weak condition of the patient and the close proximity to the brain.

"Twelve days following there appeared to be some recurrence, when the patient was anesthetized and the same technic employed as was described in the second stage of the first operation, with the addition that the periosteum was stripped from the orbit and the orbit evacuated of its entire contents.

"Two weeks later a full dose of Roentgen rays was given directly through the orbit, and the ordinary cross-fire doses from other angles. Half-doses were repeated two weeks following. I believe this heroic *x*-ray treatment had much to do with preventing recurrence."

The circumferance of the growth at the time of operation was just short of 20 inches.

It was feared that the shock of complete removal of the orbital contents at the time of the first operation might be too great, and the writer suggested that the small amount of remaining orbital tissue be postponed for the second intervention ten days later. There was a rise of temperature to a trifle over 100 degrees at each operation. The improvement in the child's condition after the second operation was definite and steady.



Recurrent neuroepithelioma after operation.

, As the orbit became lined with epithelium which did not show the slightest sign of malignancy, the child's color, appetite, weight, and activity all indicated a very marked betterment, until we almost became hopeful that we had escaped metastasis.

Less than a week after the abstract of this meeting was received, and having had reports of continued progress for five months, I was informed that late in April the child began to complain of shooting pains in the lower limbs, which were regarded as rheumatic by her family physician, but which rapidly increased and were accompanied by evident symptoms of paralysis of the legs, with impairment of réctal and bladder functions.

On May 8th Dr. Charles W. Burr, consulting neurologist to the Episcopal Hospital, saw the child in consultation with Dr. Clark and myself. The result of his examination is embodied in the following note:

"A complete flaccid palsy in both legs. Both knee-jerks very slight. No anesthesia. The muscles were flabby and there was no definite local wasting. No ankle-clonus. Loss of control of bladder and rectum. The back and the right buttock was reddened and looked as if a bed-sore would soon appear. A distinct bony kyphosis in the lower dorsal region, about the ninth dorsal vertebra, was present. Some pain on percussion over the spine in this region. Diagnosis: Myelitis due to secondary malignant growth of the spine."

An *x*-ray study of the entire spine was immediately made, and lateral as well as anteroposterior plates made of the region of the eighth and ninth dorsal vertebræ, which region represented the location of the spinal lesion, but although the plates were clear the result was negative. About four days later two convulsions occurred at intervals of ten hours, which were followed by complete unconsciousness and death. An autopsy was denied.

The ocular malignant growths in children are fortunately rare, but their extreme gravity makes it incumbent upon us to bring to bear upon any suspicious cases every possible direct and collateral study. The combination of the trauma, resulting in the lenticular dislocation with exudation and the added malignant disease, marks the case as one of especial interest. In neuroepithelioma or glioma the anterior chamber is apt to be shallow. In vitreous exudations the chamber is apt to be peripherally deepened. Here we had the exudation following the traumatism with the malignant disease, but with an approximately normal anterior chamber.

The matter of tension as aiding in the diagnosis is always of interest, it being said, upon a former occasion, that we may have a minus, a low plus, or a normal tension during the early stage. As a rule, however, a normal tension, and, of course, to a much greater extent a plus tension, should point to malignant disease, given other suggestive factors.

As was also said by the writer in a former communication before the Ophthalmic Section of the College of Physicians, an exploratory puncture in supposed intraocular growths invites extrabulbar extension and metastasis. The three varieties of these growths are: First Neuroepithelioma exophytum, usually characterized by several nodes, minute in size, growing somewhat toward the vitreous but spreading in the subretinal space, forming, by their confluence, a tuberous deposit. Second: A general thickening of the entire retina, later proliferating into uneven and protuberant growths, forming the diffuse variety, or neuroepithelioma planum. Third: The extension of the growth wholly in the direction of the vitreous, the choroid remaining attached, the prominent surface or surfaces being lobulated or cauliflower-like, constituting the neuroepithelioma endophytum.

With the exhaustive studies of Wintersteiner we are doubtless all familiar—studies which place the origin of these growths in the neuroepithelium of the retina, and classify them as one of three types according to these methods of growth, the distinction being possible only in the quite early stages, such classification not in any way modifying the dictum of immediate excision of the ball, prompt microscopic study and equally prompt orbital exenteration, if infiltration of the nerve posterior to the eyeball points to an extension of the malignant disease.

Showing Dressing After Operation.

Thus and thus only is it possible occasionally to save a life of a patient so affleted. It is generally conceded that operation in recurrence is useless, in such instances there being grave danger of death upon the operating table.

In the last edition of de Schweinitz the peculiar rosets described by Flexner, Wintersteiner, and other authors, which are composed of elements resembling the rod-and-cone visual cells, constitute the reason for naming these growths neuroepitheliomata. This explanation is questioned by Alt and by Ginsburg. Other authors in recent editions have accepted the newer nomenclature for all these growths as scientifically correct and as replacing the older. A so-called spontaneous cure is quoted by de Schweinitz from Lindenfield, and another by Wood from Dekleijn.*

It is interesting to note that in 24 eyes removed in children during five years at Moorfields, 7 were pseudogrowths.

It is scarcely necessary to more than enumerate the conditions concerning which we should be upon our guard in the study of ocular malignant disease in children from the standpoint of differential diagnosis.

1. Apparent simple retinal detachment.
2. Leukosarcoma of choroid.
3. Tubercles of the choroid.
4. Chronic inflammatory processes in the choroid and ciliary body.
5. A yellow mass behind the lens, induced by an acute suppurative process in the vitreous.
6. Possibly cysticercus.
7. Certain congenital abnormalities (vascularity of lens capsule).
8. Retinitis circinata.
9. Persistence of the posterior part of the fibrovascular sheath of the lens.
10. And, finally, a rare and interesting condition recorded by de Schweinitz and Shumway, as extensive dropsical degeneration of the rod-and-cone visual cells which exactly simulated glioma.

The study of the history here related emphasizes afresh—

1. Danger of delay in excision of eyeball where malignant disease is suspected.
2. The preëminent importance of immediate microscopic study of the nerve posterior to the eye.
3. The dictum of immediate and complete orbital evisceration if malignant infiltration is found beyond the limits of the eyeball.
4. A reasonable modification of the usually accepted belief that operation in recurrence is absolutely useless.

*Graefe's Archives, 1912.

5. That the electrothermic method is an extremely valuable adjunct to our surgical procedure, and can be depended upon to eliminate the danger from hemorrhage in orbital exenteration.

# AN INTERESTING LITTLE BOOK ON "EIESIGHT."*

BY

LEWIS H. TAYLOR, M. D.,

WILKES-BARRE, PA.

A sudden declaration of war on the part of certain European countries some months ago, just at the close of the Surgical Congress in London, interfered with a contemplated trip on the continent and made it necessary for me with many others, similarly situated, to remain for a time in England.

I know of no more interesting place in which to be stranded than London. Here can be found variety of entertainment to suit all tastes and inclinations, and among other forms of interest, that which is furnished by wandering around among second hand book stores is by no means to be despised by those who are inclined to this harmless but not always cheap form of dissipation. Having visited a number of these interesting places and having purchased several old volumes which I had ordered sent home, I happened, the day before leaving London, upon a very small but quite interesting volume on the "Preservation of Eiesight," which I was assured was among the very rare books in the dealer's collection, and it is in talking of this little volume and its interesting old author that I am about to waste a portion of your valuable time and impose upon your well known good nature. It is interesting to me because it is, as I have good reason to believe, the first book published in the English language upon the eye or eyesight. It is interesting also from its quaint insistence upon remedies long since abandoned, or of diet and regimen that to say the least would be of doubtful use, if not harmful; and finally, it may be of some interest to you to know that the author was one of the predecessors of the founder of this Book and Journal Club, and occupied the chair of Regius Professor of Medicine at Oxford during the reign of Queen Elizabeth.

Dr. Walter Bayley (1529-1592), physician, called in Latin Bailaeus, and in English books also Baley and Bailey, was born in 1529 at Portsham, Dorsetshire, in which county his father was a squire. He was educated at Winchester school and became a fellow of New College in 1550, having served two years of probation. Having taken the degree of Bachelor and Master of Arts, he studied medicine and graduated M. B. in 1557 and M. D. 1563. He was proctor of the university, was already in holy orders and was made a canon of Wells. In 1579 he resigned this preferment. He was appointed regius professor of physic at Oxford in 1561, two years before he received the degree of Doctor of Medicine. Queen Elizabeth later made him one of her physicians, and he was elected a fellow of the College of Physicians in 1581. He was esteemed to be very skillful in his profession and attained a large practice. He died March 3, 1592, and was buried in the inner chapel of New College in Oxford, where his son William put up a tablet to his memory. His biographer says: "A Briefe Treatise on the Preservation of the Eyesight is the best known of Dr. Bayley's works. It appeared in his lifetime and was reprinted at Oxford in 1616." The copy that I have, the first edition, was published in 1586 but the place of publication is not given, though in all probability it was either London or Oxford.

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*Read at Book and Journal Club, Baltimore, Md., March 16, 1915.

Of course, this is not the first book upon the eye, though quite likely the first in the English language. Among medical works before the age of printing, there are many references to the eye: In the Ebers Papyrus, in the Hindu Susruta, in Hippocrates and Galen, among Arabic writers, e g., Honain's ten books on eye diseases, and in chapter six of the sixth book of Celsus. There is also a manuscript breviary by Petrus Hispanus (13th Century) which was edited and published by A. M. Berger (Munich. 1899). In Guy de Chauliac's Chirugia, part two of the 7th Section (Nicaise ed. pp. 460-491) there is also a chapter on diseases of the eye: Also *Vigo,* John: Works of Chirurgerye, translated from the Original Latin, contains a full account of the Anatomy and Diseases of the Eye. First English Edition, London, 1543. The first individual works to be printed were:

*Grassi* (Benvenuto) of Salerno, De oculis eorum que egritudinibus et euris, printed in Ferrara, in 1475.

*Guillemeau* (Jacques) Traite des maladies de L'oeil, qui sont en nombre de cent treize, ausquelles il est sujet. Paris, 1585.

It was the translation of this book that appeared later in England by Richard Bannister, under title of "One Hundred and Thirteen Diseases of the Eyes and Eye Liddes," the second time published in 1622, and is sometimes called "the earliest work on Ophthalmology to appear in the English language."[1]

*Bartisch* (George) Ophthalmodonleia das ist Augendienst. Dresden, 1583. First book on eye surgery, with many illustrations.

*Baily* (Baley or Bailey or Bayley, Walter). A briefe treatise touching the preservation of the eiesight, consisting partly in good order of diet, and partly in the use of medicine, n. p. 1586.

It is this little book with the large title that will claim our attention this evening.

There were two treatises concerning the Preservation of the Eyesight. The first written by Dr. Bayley, 1586, sometimes of Oxford, and this is the one I show you tonight; and the other collected out of those two famous physicians, Fernelius and Riolanus, Oxford, 1616.

In Aikens Biographical Memoirs, 1789, the book is referred to as follows:

"A Briefe Treatise on the Preservation of the Eie-sight"; printed first in the reign of Elizabeth, and reprinted in 1616 and 1654, and likewise in 1622 along with Banister's Breviary and the One Hundred and Thirteen Diseases of the Eyes. It is a compilation chiefly from the antients; and with a few good rules, contains many fanciful and idle notions concerning the *juvantia* and laedentia of the eyes, with extraordinary recommendations of the herb Eye-bright. To the edition of 1616 is added a second Treatise of the Eyesight collected from Fernelius and Riolanus."

In the preface to the work, the author desires, as authors so in our day, merely to do good to his fellow man, for he says:

"Occasioned through certain speeches had with some of mine honourable good friendes to write mine opinion of means to preserve the sight in good integrity, I have performed the same in this little pamphlet, wherein I have directed my pen rather to leave rules for those which have not in themsleves sufficient knowledge than to satisfy the learned; who I know can devise much better means and remedies. And my intent being only to set down some order, as may be fittest for all sorts of men to continue in perfection their sight, I thought not good to insert any discourse of the diseases of the eies which will require a long treatise and cannot well be executed, but by men which have skill in the arts of physicke."

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[1] See American Cyclopedia of Ophthalmology, Vol. 11, page 879. "Bannister, Richard."

For a "Regius Professor of Physicke" this seems somewhat modest. He adds:

"Therefore it seemed meete unto me at this time to omit that part, and to leave the reader for the knowledge and cure of such diseases to the professors thereof by whose helps they may receive remedy of all infirmities and affects, which shall happen to the eies; purposing in this little treatise onely to declare how the sight might be long continued in his integrity, by such common order as may of all men in their trade of life be reasonably followed, leaving all other harder matters to a farther direction of the learned."

He shows us, too, that the yearly habit of giving presents to our friends, which we observe so regularly at Christmas time, was in the Sixteenth Century observed on New Year's Day and that it was then an ancient custom, for he says:

"And now following the laudable custome begun in ancient time, and continued in these our daies of presenting friends with New Yeers gifts, for lack of other things of greater price, I offer unto you this little pamphlet, as a signification of my good will, wishing that the same may be a token of many good and prosperous yeeres' which God the giver of al goodnesse send unto you."

He then begins his "Brïefe Treatise" with the statement from the title that the "preservation of the sight doth consist partly in good order of diet, partly in the use of medicines."

After giving directions as to location of the dwelling, air, winds, smoke, etc., he goes on to state the kind of meats that are desirable to preserve the sight:

"Amongst such a yong henne is greatly commended; so is partridge and pheasant . . . and especially the wyld doue, which (as Zoar writeth) hath especial vertue against the weakness of the sight which cometh by defect of spirits."

Among vegetables he commends turnips, "for it is accorded by all writers that the turnip hath great facultie to do good to the eies, and to preserve the sight." "Grosse and slimy meats and all water fouls are dispraised."

All small birds are condemned, so all fish. Though he says: "No fish is a complete good; yet some fishes which do skoure in grauely places, being savery sodden with white wine, fenel, eiebright, sage, perslie, etc., may at sometimes be eaten. And so a little sault fish moderately taken doeth no great harm.

"Milk and all things made thereof are found by experience to induce dimness of sight; reare rosted, reare, sodden or poched eggs are holesome, especially eaten with the pouder of eiebright, fried eggs and hard are blamed."

Of spices he tells us that cinnamon is commended by Avicenna as "speciall good for the web of the eie, and for dimness of the sight . . . and all three kinds of peppers may be used."

And this reminds us that our author was especially interested in this spice for he published in 1588, "A short discourse on three kinds of peppers, etc."

He then discusses various vegetables, but refers again to the turnip or rape root as above all others noted for excellence to preserve the eiesight. Most fruits are condemned, also nuts.

"Chestnuts are very windie, better friends for Venus than for the eies."

So also in the matter of drinking our author is quite reasonable. In these days of anti-saloon leagues and on the eve of world-wide prohibition, I hesitate to quote our author. But remembering that he was a Regius Professor of Medicine and that he was writing in the Sixteenth Century and warning you not to follow too closely his teaching, I venture. He says:

"Such drinkes as are in common use and accustomed, are to be allowed; therefore, he that hath been used to drink beer, may not forsake the same and so in ale.

"And in this respect it is not amiss at meat to drink wine for them which have been accustomed to the same; although wine in some affects of the eies is forbidden, yet to preserve the sight, wine is not inconvenient, for the vapours of wine are drying and do consume and extenuate grosse and thick humours, so it be moderately taken. In this place I do greatly commend their counsels which do prepare medicinable drinks with eiebright and other things comfortable for the sight, to be used in the morning and at meates if the patient can well endure to drinke the same."

Richard Bannister, author of a Treatise on One Hundred and Thirteen diseases of the Eyes and Eyelids, published in the early part of the Seventeenth Century, condemns the practice which then prevailed of drinking large draughts of ale the first thing in a morning for the benefit of the eyes.

The little book on Eyesight is largely a compilation, or rather, expression of opinions from other authors, especially from Arnold de Villa Nova, a celebrated physician of the latter part of the Thirteenth and early part of the Fourteenth Century. He was a great traveler and well acquainted with many languages. He practised physic in Paris, but he put forth some new doctrines obnoxious to the authorities and was compelled to leave the city. He was shipwrecked on the coast of Genoa in 1309 or 1310. His works, with a sketch of his life, were printed at Lyons in 1520, and a complete edition again in 1585. It may be that Dr. Bayley was familiar with this edition as he quotes Arnold more extensively than anyone else. Bayley devotes a large portion of his little book to the extravagant praises of Eyebright, the *Euphrasia officinalis* of our older pharmacopœias.

Speaking of drinks which may be made with different herbs, he says:

"The simplest and most written of is with the herbe called of the Arabians Abdil, in Latin Euphragia, in English Eiebright, of whose miraculous vertues in preservation of the sight, Arnoldus de Villa Nova hath written in these words: Eiebright is good any way taken, either with meat, drinke or medicine, greene and drie, against all impediments of the sight, whereby the clearness of the same may be obscured.

"And he writeth thus of wine made with eiebright, which he calleth *Vinum euphragium*. This wine, saith he, is made by putting herb in the muste or new wine, until the same wine become cleare to be dronke. By the use of this wine, olde men's sights are made young, it taketh away the impediments of the sight in all men, of all ages, especially fat men and such which doe abound with phlegme.

"One (saith he) which was blind and did see nothing in a long time, by using this wine one year was restored to his sight. The herb is hot and drie and hath by propertie of substance to remove affects of the sight. And so the powder of the herbe taken in an egge or dronken in wine doth wonderfully perform the same. And there are yet alive (saith he) witnesses of good credit which have made proof hereof in themselves, which could not read without spectacles, by use hereof have recovered their sight to read small letters. And so Arnoldus concludeth, that nothing to doe good to the sight, is to be compared with wine made of eiebright."

Here is an interesting little side light which shows us that spectacles were in use in the Thirteenth Century.

He goes on to great extent to tell how the eyebright should be made and how various ales and beers are best made also.

The Euphrasis officinalis so highly boasted must have been regarded in ancient times much more highly than in ours. In another interesting little book which I have in my possession, the London Dispensatory and Physicians Library by Nich. Culpepper, Gent. Student in Physick and Astrology, published in 1702, it is said:

"*Ephragia,* Eyebright, is something hot and dry, the very sight of it refresheth the Eyes; inwardly taken it restores the sight, and makes old men's Eyes young; a dram taken in the morning is worth a pair of spectacles, it comforts and strengtheneth the memory, outwardly applied to the place it helps the Eyes."

Modern Dispensatories and works on Materia Medica speak slightingly of its value or fail to mention it at all. Potter, in the Sixth Edition, says of Euphrasia officinalis:

"It was formerly of great repute in various eye-effections, and may be of utility as a mild astringent in catarrhal conjunctivitis. Its chief value, however, is to abort an attack of acute nasal catarrh with lachrymation for which purpose a few drops of the tincture every two hours is remarkably efficient. In hay-fever, also, it is of decided utility in mitigating the catarrhal symptoms, and in the acute coryza of measles it will be found an excellent remedy. A tincture of the fresh plant should be used (I-V m.)."

F. M. Garland, in Boston Medical and Surgical Journal, 1889, has the only modern article I have seen on this remedy. He says:

"Once upon a time, it was written of Euphrasia that it possessed wonderful powers, and produced cures little short of marvelous.

"Euphrasia officinalis, Eyebright, a small annual plant, common to Europe and the United States, without odor, etc. It was formerly used in various complaints, and among the rest in disorders of the eyes, in which it was thought to be very efficacious, and in the treatment of which it is still popular in some countries. 'The New Dispensatory,' William Lewis, Dublin, 1778: Hildamos says he has known old men of seventy, who had lost their sight, recover it again by the use of this herb; later practitioners have not been so happy as to observe any good effects from it. At present it is totally and not unjustly disregarded."

Pharmacopœia Officinalis and Extemporanea, or Complete English Dispensatory, John Quincy, M. D., London, 1733, says:

"Euphragiae, Eyebright, is also sometimes wrote euphrasia, and eutrasia and by some called ophthalmia, and ocularia, eyewort. Flowers in June, July and August sometimes. It is recorded a great dryer, and in that respect a cephalic, for which reason it is smoaked as tobacco. 'Tis of great esteem in distempers of the eyes."

With this history it would seem that euphrasia must have possessed some virtues to acquire such great renown, and on the other hand, its fall from favor must have been due to its failure to accomplish work for which it had been injudiciously advised.

Dr. Garland especially recommends it in acute catarrhal head colds. "Tincture five to ten drops every two hours, dries up the secretions."

In coryza of babies. "Few drops in half glass of water. Little patient may drink ad lib." In Foster's Dictionary:

"From Greek: Euphrasia, cheerfulness. Much recommended by the old herbalists both outwardly and inwardly, in powder and decoction for diseases of the eyes."

"It is still a domestic remedy and has been recommended for colds in the head."

Bayley concludes his eulogy of Eyebright by an observation of his own:

"I can witness, that many by this simple composition of eiebright and fenell seeds, have found great good for their sight not only to continue in good estate but also that some have found remedie against the dimness and other impediments growing in their sight. In truth once I met an old man in Shropshire called M. Hoorde, about the age of eighty-four yeres, who had at that time perfit sight, and did read small letters very well without spectacles; he tolde me that about the age of forty yeres, finding his sight to decay, he did use eiebright in ale for his drinke and did also eat the powder thereof in an egge three daies in a weeke, being so taught of his father, who by the like order continued his sight in good integrity to a verie long age.

I have heard the same confirmed by many old men. Rowland Shorelooke, an Irishman, Phisition to Queen Marie, did affirme for trueth, that a Bishop in Ireland preceiving his sight to wax dimme, about the age of fiftie yeares, by the use of eiebright taken in powder in an egge, did live to the age of eighty yeares with good integrity of sight."

Like many in our day, our author cannot get away from the drink for he now goes on in a long discourse again about the use of various drinks and mixtures that may be taken with wine, ale, etc. He gives good advice as to regularity of habit, eating, sleeping, etc., even as to position in sleep for the preservation of the sight:

"Best to begin to sleep upon the right side and then turn on the left side: to sleep upright upon the back is naught generally; to turn upon the face, worser for the sight. Care must be had that you sleep not in a chamber or any place in which the moone doth shine."

He says:

"A modest use of Venus performed in the feare of God in due time, when the meate in the stomacke is digested, and nature desirous to be disburdened, is to be allowed; so immoderate and unseasonable use thereof, doeth of all things most hurt the sight, and soonest induce blindness."

It might be of interest to those of us troubled with baldness to learn that:

"Amongst orders to remoove the weakness of the sight, Avicenna writeth that the combing of the head is not of least force, which ought to be done everie morning fasting backwardes against the hairs, for it draweth the vapors out of the head and removeth them from the sight."

He closes the first part of his treatise with a sentence to which we may subscribe even in our day:

"Mirth, joy, and pleasantness of mind, is good; a little anger doth not hurt; immoderate sorrow, fearfulness and all vehement affections are forbidden in all affectes, but in this our case chiefly, as most hurtful to the sight."

The second part of the little book dealing with medicine or the eyes is quite short; it is interesting, however, to know that he makes mention of "Eie cups," showing that this device is not modern.

"These things following are found very much to comfort the sight in staying the visible spirits from wasting, corall, pearl, the stone called Lapis Armenius, spectacles of Christalline or clear and pure glass, green and skie colours, to dip the eies in cold water, to which purpose many have cups made in the form of an eie, called eie cups; & to wash the eies with the waters of decoctions of eiebright, roses and veruaine."

He gives a long description of preparation of medicine of the juice of fennel which must be made in the month of April, and according to instruction, it requires a full month to make it.

"Also our authors do commend the washing of the eies with the urin of a child, and sometimes to drop the same in the eies. And for this purpose also they do commend lie made of the ashes of fenell stalks. We doe read in all our writers great commendations of a liquor of liver of a goate, prepared in manner following. Take the liver of a male goate, not diseased, not newly killed; and after it is well washed, pricke it in many places, and fill the same with graines of pepper, and infarce the liuer with the leaues of fenell and of eiebright, then rost it with a soft fire, cleare, not smoky, until it be reasonably rosted; and in the time of rosting, reciue the liquor which doth distill in a conuenient vessel, & apply the same to your use."

But I fear the ophthalmologists present are already worrying over the prospect of having some of their practice taken away from them and so I will not go farther with a description of internal medicines.

Dr. Bayley was the author of several other works as given in the catalogue of the British Museum:

"A Briefe Discours of certain Bathes or Medicinal Waters in the County of Warwicke neere unto a village called Newman Regis (Oxford) 1587."

"A short discours on three kinds of Pepper was published in 1588."

But the work on Eyesight seems to have been his chief work and was published many times after his death and the British Museum has these different editions.

The first, 1586, by Dr. Bayley himself, and the next, 1616, collected out of those two famous Phisicians, Fernelius and Riolanus. (Oxford) 12°, another in 1633 and one in 1654-8°.

In the library of Robert, Earl of Aylesbury, was a MS. of our author,—"An Explication of Galen concerning the Drink of those who are recovering from a Fit of Sickness, and the aged and particularly concerning the Preparation of English Ale and Beer, etc."

I hope, Mr. Chairman, I have not tired you unduly in this rambling on about something that is of no practical value to us. But in this busy, rushing, practical world it is well and restful to pause awhile and spend a little time now and then on something that is not practical and it is helpful occasionally to look back upon the doings of our predecessors.

We find in some, much to commend and follow; in others, much to avoid; and in still others, something at least to amuse us in the idle hour. And when we compare the Regius Professor of Physick of three hundred and fifty years ago with the one that we know and love so well, we realize that after all the world does move, and that we will take as our exemplar the one of the present rather than the one of the past.

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# FACTORS TO BE CONSIDERED IN THE INTRACAPSULAR CATARACT OPERATION.*

BY

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AND

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In order to obtain a successful result after a cataract operation, whether immediate or remote, many factors must be taken into consideration. In the first place, the mere existence of a cataract is not of itself an indication for its removal, and any operation must be justified beforehand by sufficient and reasonable evidence that the patient will be benefited; to remove a cataract when either the retina or the optic nerve has lost its function is to do useless surgery. In the second place. besides carefully considering the eye and its functional status. the general condition of the patient must be given careful attention to decide whether an operation is advisable, for certain constitutional conditions, such as diabetes, for example, should lead one to hesitate. And finally, the choice of operation must be made with due deliberation.

In recent years a great deal of attention has been drawn to the Smith Indian intracapsular cataract operation. Colonel

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* Read at the Annual Meeting of the Pacific Coast Oto-Ophthalmological Society, June 18-19, 1917.

Smith and some of his pupils do this intracapsular operation as a routine procedure and the results obtained by them have been so brilliant that many other operators have directly or indirectly been encouraged to attempt it, only to find, however, that their results were often disappointing. This was principally due to two reasons: First, a lack of the thorough knowledge of the technical details of the operation in question, and second; failure to properly select the cases best adapted to it.

Operators who have not had the advantage of personal instruction by Colonel Smith, in connection with the extensive operative material that India affords, will get more satisfactory results by careful attention to the selection of the cases best adapted for the intracapsular operation. Unless one has had the opportunity for such a thorough training the Smith Indian operation should not, we believe, be employed as a routine procedure. Our principal aim as ophthalmologists is to conserve and restore vision, and only those methods which will best help to accomplish these ends must be the ones chosen.

In this brief paper we shall confine our discussion largely to the latter of the two points mentioned above: namely, the selection of the cases best adapted for the intracapsular operation. Though Colonel Smith removes all forms of senile cataract by the intracapsular method and many of his pupils do likewise, those operators who have not had the advantage of his personal instruction are apt to choose for operation by the intracapsular method cases least adapted for that procedure, and thus come to disappointment where knowledge to select the proper type would result in satisfaction to both operator and patient. Neither Smith nor any of his pupils has heretofore pointed out with sufficient clearness those cataracts to choose for the intracapsular and those in which to perform a capsulotomy extraction; opinions expressed by other writers on that score have usually been faulty.

In following out our purpose of designating cases best adapted for the intracapsular operation, as well as indicating those cases in which this method is to be avoided, we will very briefly cover the five most essential points; namely: 1. Type. 2. Stage of maturity. 3. Influence exerted by age. 4. Facial characteristics. 5. Temperament of the patient.

The type of cataract especially indicated for the intracapsular operation is the senile. Congenital, juvenile, and traumatic forms are not suitable for intracapsular extraction.

While it is true that practically all forms of senile cataract may be removed successfully by the intracapsular method, some forms lend themselves more readily to that procedure than others; the immature, especially in patients past the age of sixty, and the Morgagnian, or tumblers, are the forms which give the best results by the intracapsular extraction. The mature cataracts in young patients, and the flat, or discoid, are much less satisfactory for this operation.

Age seems to have little or no bearing on healing or on recovery, but it does seem to have a distinct influence in the delivery of the cataract. In young individuals, the suspensory ligament is much less yielding, while the older the patient the weaker the suspensory ligament and consequently the greater the ease of delivery. Therefore a patient may be too young for the intracapsular operation, but rarely, if ever, too old.

The facial characteristics of the patient have a decided bearing as valuable indications in selecting the intracapsular method for operation. Deep-set eyes, with large palpebral fissures and lax lids, are factors of importance towards a successful result. In other words, the cadaverous type of face is the safest on which to perform the intracapsular extraction.

On the other hand, prominent eyes with tense lids are much more hazardous on which to attempt operation by this method as these patients are very apt to lose a large amount of vitreous through pressure of the lids and retraction of the eye by the recti muscles.

Among the many patients who present themselves to the ophthalmologist for relief is that peculiar type of nervous individual whose lids twitch at the slightest provocation; touching the lids with the finger or the mere instillation of a drop into the eye causes an involuntary spasm of the lids. Such patients invariably exert great pressure on the speculum and at any stage of the operation, from the incision to the completion of the toilet, are apt to expel vitreous.

A serious objection to the intracapsular operation as usually performed is with the corneal incision; when the section must be so large as it is required to be for the intracapsular operation it is certainly easier to make a corneal incision; this offers less impediment to the delivery of the lens while at the same time it probably slightly reduces the danger from vitreous loss. But there are, however, two serious objections to it; first, the greater frequency with which the iris adheres to the lips of the wound, and second, the liability of the down-growth of epithelium from the wound into the anterior chamber. This latter factor, aside from other possible untoward results, usually materially reduces the vision, although a good reflex may be obtained with the ophthalmoscope.

Contrary to the common conception, there is no appreciable difference in the amount of astigmatism resulting after a corneal section as compared with a limbal, with or without the conjunctival flap.

In our experience the combined extraction with a limbal incision, preferably with a conjunctival flap, has proved more satisfactory than one with a preliminary iridectomy.

The simple extraction is not well adapted to the intracapsular operation, for the pupil which at first may be central and round becomes, in a majority of cases, distorted and drawn up, due to the fact that the iris becomes adherent to the wound.

In conclusion, then, we urge the operator who attempts it to avoid for the intracapsular operation those patients with prominent eyes, tense lids, and marked nervousness; choose always the patient with sunken eyes, lax lids, and wide palpebral fissures. The older the patient the easier will be the delivery of the lens; the maturity of the cataract is the least consequential of the factors requiring consideration.

Do not attempt the simple extraction as in a majority of cases it will prove unsatisfactory.

And never, under any circumstances, attempt to remove a congenital, or a juvenile cataract, by the intracapsular method, and rarely even a traumatic cataract unless the lens is partially dislocated.

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## STEEL IN THE EYE WITHOUT SYMPTOMS

BY

FRANK ALLPORT, M. D.
CHICAGO, ILL.

If I were placed upon the expert witness stand and asked a hypothetical question as to whether it would be possible for a fair-sized piece of steel to pass into the interior of the eye without producing immediate symptoms, I should have replied in the negative before seeing the two cases which I am about to report. Strangely enough, these two cases presented themselves to me within thirty days of each other and in my entire life I have never seen a similar case.

(Case 1.) M. M. consulted me April 2nd, 1917. He stated that April 1st, while adjusting an electrical apparatus, an electrical flash occurred near his face. As far as he knew no foreign body entered his eye. Both eyes were somewhat inflamed. He says this was the first eye accident he ever had. The vision of both eyes was 20/30. I found no corneal abrasion by the fluorescein test. There was no opacity of the cornea, no opacity of the lens. He merely came on account of the congestion of both eyes, to get some eye water, as he expressed it. Upon examining the left eye I found at the extreme lower angle of the anterior chamber a glistening foreign body. An X-Ray corroborated this observation. I sent him to the hospital and made an incision at the extreme lower portion of the cornea. The magnet drew the foreign body toward it, but the steel and the iris were held together by sharp points upon the foreign body. I, therefore, introduced forceps into the anterior chamber, grasped the iris and pulled it out through the corneal opening and cut it off, making a small iridectomy. The foreign body was delivered at the same time. The magnet promptly drew the steel to its point, thus proving its character. This man made an uneventful recovery with unimpaired vision, in ten days.

(Case 2.) W. B., who runs a lathe, consulted me May 2nd, 1917. He said that about April 15th he thought a small foreign body struck him in the eye. He went to see a doctor, who examined him carefully and found nothing. He went back to work and had no further trouble. May 2nd he noticed that the vision was poor in his right eye, and consulted me to ascertain the cause. The eye was entirely uninflamed. An examination disclosed a slight corneal opacity directly over the pupil. He also had a cataract, and in the center of the cataract a glistening piece of steel could be seen. An X-Ray corroborated this opinion. I sent him to the hospital and removed the steel through a keratome incision with a magnet. I subsequently removed the cataract and secured good results.

The last case doubtless had a foreign body driven into the lens through the cornea at the time of his little accident about April 15th, but it is strange that the doctor did not see the foreign body and that no irritation or pain followed the accident, that he should keep on with his work and that he was unconscious of anything being wrong with him until he noticed an impairment of vision May 1st. The first case is even more peculiar because the only accident that this man knew anything about was the electric flash, which occurred the day he consulted me. At this time with the exception of a slight redness of both eyes, there was no evidence of any injury at all. There was no wound of the cornea and no opacity of the cornea, yet there was a foreign body in the anterior chamber. Aside from this accident, this man says he never had any previous accident to his eye.

I submit these two cases because they are unique and noteworthy.

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# A CASE OF RECURRENT PARALYSIS OF THE RIGHT ABDUCENS LASTING TWENTY-ONE YEARS.*

BY

M. J. LEAVITT, M. D.

BROOKLYN, N. Y.

ADJUNCT ATTENDING OPHTHALMOLOGIST TO THE JEWISH HOSPITAL, BROOKLYN, N. Y.; ATTENDING OPHTHALMOLOGIST TO THE JEWISH HOSPITAL—OUT PATIENT DEPARTMENT; OPHTHALMOLOGIST TO THE HEBREW ORPHAN ASYLUM, BROOKLYN, N. Y.

Miss G., twenty-three years old, referred to me by Dr. Leon Louria, gives the following history:

When one and a half years old had measles and during the disease the right eye turned in and remained paralyzed at intervals for twenty-one years. Up till four and a half years ago the eye remained well from six months to thirteen months (the longest). After that it was well from two days to four months. Up till four and a half years ago, the eye stayed paralyzed from five to six weeks and then became well over night. When patient awoke in the morning the eye was perfectly straight. After that time, the eye stayed paralyzed about seven weeks and then gradually became better within five days.

While the eye is getting better, patient experiences a peculiar sensation in the paralyzed eye; a sort of a pressing sensation in the eye and head, and a feeling as if the eye is turning back to its normal position.

Before the eye becomes paralyzed, patient has a severe headache, chills and fever, sometimes nausea and vomiting for two days. First day, very severe; the second day, not so bad, but patient is confined to bed and cannot eat anything. Medicine taken during the attack has no effect.

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* Presented at the Ophthalmological Section of the New York Academy of Medicine, October 16, 1916.

Father died of pneumonia at 37; mother of kidney trouble at 52. There are six living children besides the patient.

Present attack started May 13th. Patient came under my observation on May 22nd. Upon examination there was a complete paralysis of the right abducens and diplopia.

External examination showed the pupils 3½ mm. reacted to light and accommodation promptly and equally.

V. O. D. fingers at five feet; V. O. S. 10/200ths.

Examination of the eye ground showed the following: Right eye high myopia, posteria staphyloma and a large double crescent. The blood vessels are rather thin; no hemorrhages in the macular region. Left eye in a similar condition with a smaller double crescent.

Under atropine patient accepted O. D. Sph. —8 & cyl —2. axis 180° equals 20/100. O. S. Sph. —5 and cyl. —2. axis 180° equals 20/30ths. Ordered Sph. —5 & cyl. —2, axis 180° for both eyes. Patient gets along well with the glasses.

The eye stayed paralyzed up to July 10th, when it began to improve slowly.

July 25th: The eye is not perfectly well, although it moves more freely towards the external canthus. Patient complains that the eye feels very weak and that she has headaches in back of head on and off, and cannot do any work.

July 30th: The eye moves more freely and feels much better, so much so, that patient obtained a good position as stenographer in a law office.

August 15th: Eye moves freely and looks perfectly normal. When patient looks steadily at one object the eye trembles, showing that the external rectus is not very firm yet. Patient has occasional headaches.

Recurrent paralysis of the abducens is a rare affection. Ocular-motor is usually affected, but cases were reported by Nieden, Charcot and Holmes. It is surprising how little there is in literature about abducens paralysis. G. E. de Schweinitz reports a case similar to this in Philadelphia Polyclinic in 1897. His case had three attacks and after each attack complete recovery followed. He then lost track of the case.

In four autopsies on recurrent paralysis of the third nerve, de Schweinitz found inflammatory thickening of the nerve in one; a tuberculous mass pressing on the nerve in another; a fibrochondroma separating without destroying the nerve fibres in a third; and connecting with the dura mater in a fourth case.

He never had an autopsy in a recurrent paralysis of the abducens, but by analogy one may reason that a lesion similar to those found in the relapsing third nerve palsies is active. His own case he explains by a patch of pachymengitis, which has been absorbed after each attack.

Knapp thinks these paralyses are due to vascular changes inflammatory or edematous in a focal lesion involving the root of the nerve. This case is extremely interesting inasmuch as after having 25 to 30 attacks the muscle, when not paralyzed, is probably as good as it was at the beginning of the disease.

## ON THE FREQUENCY OF OCCLUSION OF THE INNER END OF THE CANALICULUS IN OLD TRACHOMA.

BY

H. GIFFORD, M. D.
OMAHA, NEBRASKA.

Like everyone who practices ophthalmology for some years, I have, in former years, occasionally seen a case in which the canaliculus was obstructed at its inner end; but it is only within the last few years that I have come to realize that in cases of long standing trachoma, with much atrophy of the conjunctiva, this condition is so common as to constitute one of the regular features in the disease. Moreover, the condition is one which has much more than a scientific interest, since aside from the lachrymation which it generally produces, such a canaliculus is frequently a small pus-pocket and plays an important role in the production of the recurrent keratitis with which such patients are afflicted. Recently I have been testing the patency of the inner end of the canaliculus in all my old trachoma cases, and I have found, out of fifteen cases, only one in which at least one of the canaliculi was not occluded. Generally all four are found to be in this condition; with from one to four of the lot dilated and containing pus. Occasionally a canaliculus is occluded at both ends with a dilated pus-holding portion between them. In such cases the tear-point may look normal and pressure on the canaliculus expresses no pus from the point but if a dilator be passed a short way into the canaliculus and withdrawn, pus will be seen to follow it.

This condition is subject to two kinds of misinterpretation. Judging from my own experience in the past, it is most commonly simply overlooked. The patients come with so much else wrong with the lids and cornea that the lachrymation is looked upon as the result of the irritable cornea; or if the tear sac is pressed upon to see whether it contains pus, nothing comes from the tear points unless the pressure happens to be applied to one or more of the canaliculi as well as to the tear sac. On the other hand, if the canaliculi happen to be pressed upon and pus comes from the puncta it is supposed that the pus comes from the tear sac. For instance, I was recently fooled in this way even after having become fully aware of the frequency of this condition. An old Bohemian with extreme atrophy of the conjunctiva had such a dilatation of the lower canaliculi that pressure over the tear sac region expelled so much yellow pus that I entered the diagnosis of double dacryocystitis without hesitation, but on a more careful examination of the case I found that no one of the canaliculi connected with the tear sac. I have seen several cases of this sort where the trachoma had entirely run its course and where the recurrent corneal ulceration which was destroying the patient's sight was relieved by the proper treatment of the canaliculi.

**Treatment.**

In all the cases of this sort that I have seen, the suppuration has ceased when the canaliculi have been slit up and kept open, so as to unite the upper and lower ones; and a zinc collyrium used, together with any other treatment which the trachoma or suppuration of the Meibomian glands (which such cases almost always present) may require. In the only case of the sort in which I have been obliged to express a cataract, I closed up the cavities by destroying the lining of the dilated canaliculi with trichloracetic acid. In all of these cases in which I have opened into the tear sac, the tear duct has been found patent; but although it is not difficult to make a fresh opening from the canaliculi into the sac, I have found it very difficult to maintain such an opening. As soon as one stops passing the probe, the opening closes in a few days; and I have the impression that there is no great disadvantage in allowing the connection with the sac to remain closed. Such patients have had so much destruction of the tarsal glands that they are ordinarily but little troubled by excessive lachrymation.

The frequency of the combination of old trachoma and internal canaliculus-occlusion is probably another bit of evidence, if one were needed, of the extension of trachoma beyond the confines of the conjunctival sac; although it is possible that some of the effect on the closing of the canaliculi is due to the contraction of the tissues at the inner angle.

## Conclusions.

In old trachoma with much atrophy, occlusion of the inner ends of the canaliculi is so frequent as to be almost constant. It should be searched for systematically as a source of recurrent keratitis or of possible infection, where a cataract expression is to be performed.

The health and school departments of Chicago are co-operating in a campaign for the better care of school children's eyes by the Blind Babies' Aid Association. It is estimated that more than 32 per cent of the 300,000 public school children of the city, ranging in age from seven to fourteen years, have defective vision.

The Supreme Court of the United States affirms an order denying the complainant an injunction to restrain the enforcement of the California statute regulating the practice of optometry, but which provides that it shall not be construed to prevent duly licensed physicians and surgeons from treating the human eye. The court says that the complainant claimed to be a regularly graduated ophthalmologist. She charged that the act regulating the practice of optometry offended the Fourteenth Amendment of the Constitution of the United States in that it deprived her of her property without due process of law and denied her the equal protection of the laws. It is established that a state may regulate the practice of medicine, using this word in its most general sense. The complainant tried to escape from the rulings of those cases by which that is established by asserting a discrimination against her. She was an ophthalmologist, she averred. She attacked the statute because, to use the language of her counsel, it "arbitrarily discriminates against every other school of scientific knowledge and practice in favor of the school employing drugs in determining the accommodative and refractive states of the human eye." It undoubtedly does, but gives the name of the school that of "optometry" and its practitioners "optometrists."

# REPORTS OF SOCIETIES

## TRANSACTIONS OF THE WILLS HOSPITAL OPHTHALMIC SOCIETY, MARCH 6, 1917.

Dr. P. N. K. Schwenk showed a third case of secondary glaucoma caused, in his opinion, by a hyperreactive cataract. He first saw this case in October, 1906, when there was a cataract in the left eye and the right eye had 6/9 vision with correction. Right eye showed incipient lens haziness. On October 11, 1916, the left eye became inflamed, cornea steamy, pericorneal zone injected, pupil small. Atropine and antirheumatic remedies were given. On October 26th the eye appeared much improved. On November 8th severe pains developed, eye became injected, and tension was plus two. Atropine was discontinued. December 5th, advised removal of lens, posterior sclerotomy, and iridectomy. Admitted to hospital. History was obtained revealing loss of vision in left eye for past ten years. No pain until a few weeks ago, since which time pain has been more or less constant. Left eye shows injection of the deep ciliary vessels and pericorneal zone, cornea dull, iris discolored. Pupil small and fixed, greenish reflex. Lens cataractous, no fundus reflex. Right eye shows incipient cataract. On December 7th, a posterior sclerotomy, iridectomy, and lens extraction was performed. December 16th the corneal wound was healed and pillars of iris were free. December 20th, eye quiet. Vision with $+ 9.00 = + 4.00$ axis 180, was 6/12.

Dr. Schwenk presented this case as being unique in that there was little hope of visual improvement, the operation being done for the relief of the inflammatory symptoms. He considers that the hyperreactive lens causes a chemical irritation which gives rise to a condition simulating glaucoma. It is his opinion that removal of the lens alone would ameliorate this condition. An iridectomy alone would be ineffectual. Therefore, in all cases of secondary glaucoma an iridectomy with lens extraction is the proper procedure.

Dr. Schwenk showed a girl, six years of age, having bilateral staphyloma of the cornea caused by scalding with hot water. The face is uninjured. The right eye shows a small rim of iris in upper part of cornea. The left cornea is so bulged forward as to render closure of the lids impossible. An iridectomy is indicated in the right eye. The left eye should be enucleated

Dr. William Campbell Posey showed three cases of Interstitial Keratitis: (1) In a tubercular girl, in whom the inflammation had invaded but one eye and had yielded rapidly to the hypodermic administration of old tuberculin. The general health of the patient had also improved greatly. (2) In a boy, the subject of inherited lues. Both eyes characteristically affected. Disease yielding slowly to mercurial inunctions. (3) In a girl with hereditary syphilis. Mercurial inunctions seemed to have availed nothing. When first treated right eye alone affected, fellow eye being attacked three weeks later, despite mercury. Salvarsan twice administered, beneficial effect appearing in one week after last dosage.

Dr. Posey also showed a girl with secondary glaucoma, with large staphyloma of cornea following perforating ulcer, the result of granular conjunctivitis. The girl had been under his care from childhood and an iridectomy done at that time had been the means of conserving some vision until recently. His present attempt was to flatten the apex of the staphyloma, which had become a source of irritation to the upper lid, by caustics.

Dr. Posey said that he was unable to subscribe to Dr. Schwenk's views in regard to the causation of glaucoma. Years ago operators had vainly endeavored to reduce tension by removal of the lens, but as far as he knew, no one now practiced this procedure. When glaucoma arises in complication with cataract, the increase in tension is due to some mechanical hindrance to the escape of fluid from the angle of the anterior chamber and is not due, in his opinion, as claimed by Dr. Schwenk, to a chemical irritation provoked by the lens substance.

Dr. G. Betton Massey (by invitation) presented Ionization Treatment of Cancer of the Eyelids. Dr. Massey showed two cases of extensive epithelioma of the orbit under treatment by zinc ionization with apparently promising results, and reported a series of eleven cases of epithelioma and one of endothelioma of the eyelids and adjacent parts that had been treated by zinc ionization during the past eleven years, all but one of which had resulted in eradication. Nine of these had been well more than three years. He regarded the zinc ionization method with the unipolar technic to be peculiarly well adapted to small malignant growths in these situations because of the ease with which low volt direct currents may be handled. For larger growths the bipolar technic was more effective, as we may then conjoin the cooking effect of a heavy current developing heat within the growth itself as an adjuvant to the destructive action of the ionization. These methods are bloodless, and result in sealing the absorbents at the edges of the destroyed area, thus preventing operative re-infection.

Dr. Massey also reported six cases of inoperable, recurrent malignant growths of the orbital cavity that had followed enucleation of the eye for malignant disease. These had been placed under some form of zinc ionization during the past twenty years, resulting in one operative death and only palliation in the remaining cases. The more recent bipolar technic may yield better results in cases in which the disease has not passed beyond the orbital foramen.

Dr. William Zentmayer presented a patient on whom he had performed the Beren's operation for symblepharon. There was a rather broad adhesion between the lid and the cornea at the position of an adherent cicatrix. The operation consists in dividing the band at its middle and tying sutures which have been made to transfix the band at the position of its two points of origin, across the face of the cut ends. This operates to turn the raw edges inwards.

Dr. Zentmayer also presented a patient on whom the Kuhnt-Heisrath operation had been performed. There was an infected ulcer of the cornea with a small Descemetcele. Despite the threatened perforation steady improvement followed the operation upon the lids and almost complete healing has resulted.

Dr. Burton Chance exhibited a case of detached retina in a little boy of 5, from the fundus of whose right eye, at about Christmas time, was noticed a whitish glare. The child had been healthy except for an attack of measles which had lasted, so the parents thought, longer than other cases they knew of, and, on July 4th of last year he fell down steps striking the back of his head, which fall did not, however, give rise to any special symptoms. When examined January 20th, the pupil was fully dilated, evidently from the use of a solution by the family physician. In the lower half of the vitreous chamber there is a broad detachment of the retina, which does not tremble on movement of the globe, and it was quite translucent when illuminated. There are no evidences of irido-cyclitis, but a strange "wisp" of vessels extends across the cornea from the upper limbus. The child has been under observation, weekly; the conditions have not changed, and he is in good health. The eye is neither painful nor tender. The tension did not at first seem to be increased, but today, it is distinctly greater than is the tension of the fellow eye.

Dr. Chance exhibited a case of extensive atrophy of the choroid in a man of about 70, who has been in good health, and in whom the Wassermann reaction is negative. There has been nothing in his business that would give rise to such atrophy. Here and there, large surfaces of the sclera are seen. There is but little secondary pigmentation. The macular region is intact, and the corrected visual acuity equals 6/30.

Dr. Chance showed the operative results in the case of Angioma of the Orbit which has been already shown to the Society. In its dissection the Angioma was found to be circumscribed. The superior and external rectus muscles were involved in the mass, and their attachments had to be sacrificed. Much blood was lost, so that the patient is anemic, and has been feverish for the past three days. On attempting to rotate the globe, distinct pulsation is noticed, which pulsation causes us to entertain the idea that there might be some disorder of the orbital vessels.

There was considerable retro-ocular pain in the left eye upon rotation, none in the right. Temperature was 99 degrees F. per mouth.

Harold W. How, M. D.
Secretary.

Fifteenth Ave. and Locust St., Philadelphia.

## COLORADO OPHTHALMOLOGICAL SOCIETY.

W. A. SEDWICK, M. D., PRESIDING.

APRIL 21ST, 1917.

### Choroidal Tuberculosis and Atrophy.

Dr. Edward Jackson presented a patient as follows:

This patient was a young woman who, until 19 years of age, had vision of 20/20 in her right eye, which suddenly diminished to 5/200. Ophthalmoscopic examination showed a central chorio-retinitis, with a large area of edema of the adjoining retina. The ophthalmologists, under whose care she then was, "were unable to determine any cause for the condition," although careful clinical examination of her general condition was made, which did not, however, include tuberculin tests. She was given pilocarpin sweats, mercurial inunctions, and Donovan's solution.

The patch in the macula went on to choroidal atrophy with pigment deposit. She was first seen by Dr. Jackson eight months later. Vision in this eye was 4/45, with slight pallor of the outer quadrant of the optic disc, and choroidal atrophy 2/3 of d. d. in the macula, with a small pigment patch at the fovea. The left eye was and has remained normal.

The condition continued practically unchanged for 16 months. Then vision grew worse. There was a noticeable extension of the scotoma, downwards. Ten days later swelling and gray deposits to the nasal side of the old patch of choroidal atrophy were seen. There was some pain and pericorneal hyperemia, with rise of tension to 4 on the Gradle instrument (presumed pressure 60 mm.). Shortly before this, swelling and soreness had developed in the metatarso-phalangeal joint of the great toe. Tuberculin injections gave both general and focal reactions. Under tuberculin treatment the process subsided, the additional patch of choroid undergoing atrophy, the nasal larger portion of the lesion now seen in the macula. Vision in the right eye was reduced to 2/60 eccentric. There has been no evidence of fresh disease for more than 4 years. The patient was somewhat out of health when sent to Colorado, but has never given evidence of pulmonary tuberculosis.

The appearances presented supported the view of Stock and others that a large part of cases of choroidal atrophy are due to tuberculosis.

*DISCUSSION.*

Dr. Melville Black asked Dr. Jackson if the negative Von Pirquet test would lead him to feel that the patient's eye isn't tuberculous.

Dr. Edward Jackson mentioned a case with a tuberculous meningitis who gave a negative Von Pirquet. He has a case now with a stellate figure in the macula due to retinal tuberculosis. The patient has had bone, glandular and pulmonary tuberculosis. He gives a delayed focal reaction but, of course, there is a general and local reaction present.

Dr. Black said he finds the internists depend on the Von Pirquet test a great deal. If this is negative, it is depended on, and it shouldn't be.

Dr. Edward Jackson believes we should not depend upon any one test too much. We must use judgment in our interpretation of any single test.

Dr. J. A. Patterson said a subcutaneous tuberculin test should be made in these cases, and he reported a case of a nurse with scleritis, keratitis and iritis due to tuberculosis. She had had many relapses and gave a negative Wassermann. She was given K. I. and hydrargyrum by another oculist, but without very much improvement. She reacted to tuberculin and has improved under administration of tuberculin. She has slight pulmonary tuberculosis.

Dr. Wm. H. Crisp asked Dr. Edward Jackson if he has seen a case of monocular diplopia due to change at the macula. Dr. Jackson said he had seen a case in which he believed the lesion was central.

Dr. W. A. Sedwick said his patient, a physician, has monocular diplopia due to astigmatism, but this is rather common.

### Slight Remains of Pupillary Membrane.

Dr. Jackson exhibited a patient in whose right eye a minute brownish mass was seen near the upper temporal edge of the pupil. It was distinctly in advance of the pupillary margin in the anterior chamber, and apparently connected with the sphincter region of the corresponding part of the iris. About the center of the pupil on the anterior lens capsule was a fine horizontal line, about 1 mm. long. These opacities were best seen with strong oblique illumination and magnification, but were also perceptible with a strong convex lens behind the ophthalmoscope mirror. The left eye presented no anomaly. These specks of tissue were probably very slight remains of the fetal pupillary membrane. This patient had been examined with the ophthalmoscope repeatedly in the last eight years both by Dr. Jackson, and in Philadelphia and Boston. But these appearances were only discovered within the last month when searching for a foreign body in the cornea.

In another patient, a woman of 38, the eye had been under observation for 8 years, and examined ophthalmoscopically at least nine times, and three times under homatropin, before a thread of tissue was noticed stretching across the upper nasal periphery of the pupil in the left eye. Both ends were attached to the anterior surface of the iris over the sphincter, and where the pupil was dilated the thread was 5 mm. long and drawn taut. With the pupil contracted it was entirely in front of the iris and difficult to see. These cases illustrate the readiness with which slight anomalies might be overlooked, and their probable much greater frequency than the usual statistics would indicate.

*DISCUSSION.*

Dr. Wm. H. Crisp said it is quite common to see a white veil over the disc as remains of the hyaloid vessels—he found this in a case this morning—but less common to find the remains of a pupillary membrane.

### Steel in Posterior Lens Capsule.

Dr. E. T. Boyd presented a man who had a piece of steel in the posterior lens capsule, following an injury on January 20th, last. In thirty days a traumatic cataract was very much in evidence with pain, redness, and iridocyclitis. This inflammation subsided under treatment, then he did a cataract operation the other day, and the steel came out with the lens attached. This piece of steel came from a drill chuck, as the man is a mechanic. This piece of steel in the posterior lens capsule should have been seen with the ophthalmoscope, but it wasn't. If he had seen the case early enough, he would have removed the lens early, but he did not see the man until the cataract had developed. The man is twenty-nine years old. He opened the lens with a keratome and irrigated the lens space. The pupil was well dilated before this was done.

*DISCUSSION.*

Dr. Wm. H. Crisp said he wondered what the literature would show regarding this case.

Dr. Edward Jackson said this is a recognized procedure by means of using the keratome to slip the lens out over the keratome. He feels that Boyd's case fared better than if he had seen the case early and operated early. The sticky cortex early in the disease would have complicated the operation. He would rely on the magnet rather than on the washing of the lens chamber. Risley reported his procedure at the last meeting of the A. M. A.

Dr. Melville Black referred to his case presented before this society in which the lens became cataractous very slowly.

Dr. E. T. Boyd favors the use of the small Hirshberg hand magnet for removal of steel in the vitreous.

Dr. Edward Jackson said the ideal place for the magnet is in the wound, and he seconded Boyd's remarks about the advisability of using a small hand magnet. The large magnet, he feels, is more dangerous than the small magnet. He thinks the lens masked the steel in the posterior lens capsule even quite early. He spoke of a case seen in consultation with the late Dr. E. W. Stevens, in which the steel was just back of the lens.

Dr. E. R. Neeper said he doubted the advisability of removing the lens too early. He isn't in favor of a corneal operation. He makes a scleral incision and uses a long tip from the giant magnet.

### Postoperative Case of Tumor of Optic Nerve.

Dr. Wm. C. Bane presented a boy shown at one or two previous meetings of this society. He called the attention of the society to the fact that the edema of the ocular conjunctiva is much less, and the child is improving in every way. He feels that it is instructive to follow this case from month to month, as the society has been able to do.

### Retinal Tuberculosis.

Dr. Wm. C. Bane presented a young man, age 21, first seen July, 1914. At that time he had poor vision in the right eye with slight vitreous haze. He was given K. I. to clear the vitreous. At that time the urine was negative. Three days later vision of O. D. was reduced to 5/10 and there was a flame hemorrhage on the nasal side of the disc. This improved to 5/5, and the vision remained good until April, 1916. He developed a psoas abscess on the left side and, although the vision was poor for a short time, it improved again, and then it failed so that at the present time he can recognize hand movement only. There is a grayish black mass in the vitreous. The patient gives a negative Von Pirquet test and a negative bovine tuberculin test, but by subcutaneous injection of tuberculin the test is positive. This red crescent is near the lower margin of the right disc.

*DISCUSSION.*

Dr. Melville Black said Dr. Bane's first case of exophthalmos shows the tremendous traumatism which an eye will sometimes stand with a very good recovery. This shows what an eye may be made to tolerate in extreme cases, although eyes will not always recover so well. He called the attention of the society to the circulation in the central artery and vein and that this is present in spite of the fact that the optic nerve has been cut in two. He can not produce exsanguination of this by his test.

Dr. M. Black also called to the attention of the society that Dr. Bane's second case is very typical of retinal tuberculosis with recurring hemorrhages and probably later will show proliferating retinitis.

Dr. E. R. Neeper said Dr. Bane had a perfect result in his first case.

Dr. Wm. H. Crisp thinks the red crescent in Dr. Bane's second case is due to contraction of the hemorrhage in the vitreous chamber.

Dr. W. A. Sedwick thinks this may possibly be a new growth and believes it should be watched with this in mind.

Dr. Melville Black said that transillumination is very good.

Dr. A. C. Magruder said the crescent gives a red retinal reflex from the hemorrhage and he doesn't believe this is a growth. He believes later on this will change so it will give a little different impression.

**Eye Injury.**

Dr. H. R. Stillwill presented Mr. V. B., age 62, occupation carpenter, first seen March 25, 1917. The day before the patient had received a blow over the right eye from the brake lever of a hand car. When seen the following day there was much swelling and discoloration of the lids, edema of the conjunctiva, and a horizontal ragged cut through the conjunctiva at the temporal side. The anterior chamber was filled with blood, the eye ball was soft, the cornea was clear, and the vision nil.

*DISCUSSION.*

Dr. E. T. Boyd said the eye should be enucleated. It should also be done, he believed, in Dr. Burn's case. Dr. Wm. C. Bane seconded this.

Dr. Melville Black thinks we cannot be too careful in these cases. He recommended removal of the eye in order to do the thing which will be for the best interest of the patient and save the other eye.

Dr. J. A. Patterson thought the low tension was due to retinal detachment from the severity of the blow. He believes the eye will become firmer as time goes on, and he would wait, if it were his case, before recommending enucleation.

**Probable Abscess of Orbit.**

Drs. H. R. Stillwill and D. H. Coover made a further report upon the boy with proptosis who had been presented at a previous meeting. Dr. Coover has put this case in the Children's Hospital recently.

The exophthalmos is now three diopters and the vision 4/4— with the temperature 99+ by mouth.

Dr. Coover asked the society what should be done for this boy. He is becoming more and more cachectic, the eye movement more and more limited, especially up and out. The Xray examination showed a shadow at the apex of the orbit.

Dr. Wm. C. Bane thinks pus is present in the orbit.

Dr. J. A. Patterson asked if the tuberculin test had been made. Dr. Coover replied that he has been thoroughly examined, although he gives a tuberculous history, and this has been conceded. He has pain only when he runs.

Dr. Stillwill said trauma was a possible factor, as the boy gave a history of injury from a bicycle last June.

Dr. Melville Black expressed the opinion that the tension is not from the eye but from the pus back of the eye. He probably has tuberculosis. The eye is free from inflammation. He thinks there is a tumor of some type at the apex of the orbit and this is probably not tuberculous, although the child has some tuberculous involvement in some part of the body. He would build up the child in every way possible, and later, if necessary, operate.

Dr. E. R. Neeper believes there is some tumor at the apex of the orbit. He would build up the child in a general way and give him tuberculin treatment. Later he would explore the orbit. He does not favor any radical operation at the present time as he does not believe the child's condition is favorable for this.

Dr. E. T. Boyd would do a radical operation now. He would evacuate the pus, if pus is present, or remove the tumor, in case it is found during the exploratory operation.

Dr. J. A. Patterson stated that tumor is a broad word. He believes we should consider the boy's general health first, and second, the vision of the eye involved.

Dr. D. H. Coover called the attention of the society to a case reported of a tuberculous tumor of the orbit in the last number of Ophthalmic Literature. This was by a Russian oculist.

Dr. E. R. Neeper congratulated Dr. Bane on the skillful result he has obtained with his post-operative case of tumor of the optic nerve. He said he did not believe most cases would turn out so well. We would hesitate to do so radical an operation in Dr. Coover's case.

**Eye Injury.**

Dr. H. R. Burns presented J. L. B., age 41, colored. He met with an injury of his eye on March 8th. He was struck in the eye by a bunch of keys which had been pitched to him and which he did not see. He was struck in the right eye and the lens he was wearing before this eye broke in pieces, and a piece of the lens cut his cornea from 11 to 5 o'clock. There was a cut about three mm. long in the limbus and the sclera at 5 o'clock. Also a slight cut in the cornea toward 4:30 o'clock. The lens was cut and the anterior chamber partially filled with blood.

Dr. Burns cleaned out the anterior chamber and removed, as he thought, all of the lens substance. Then he dissected up the lower half of the conjunctiva and sewed it over the cornea to the upper conjunctiva. March 13 he removed the stitches. The cornea was healed and he could see about 1/6 of the lens which was not removed at the time of the operation. At no time has there been any pain of any moment. The lens is now nearly absorbed, and vision is nil.

*DISCUSSION.*

Dr. W. A. Sedwick said the cut flap is slightly adherent and part of the lens is fastened to the cornea.

Dr. Melville Black said the case illustrates the value of a conjunctival flap. It is a dangerous, sightless eye and should be watched. It may and probably will need removal.

Dr. W. H. Crisp said he had recently dismissed a patient who had been shot with an arrow. This case was shown before the society at a previous meeting. Atropin was used freely and the eye recovered so that he thought for the present it was not necessary to enucleate it.

**Retinitis Pigmentosa.**

Dr. W. A. Sedwick presented a man from the eye clinic with a very indefinite history. His vision had failed gradually. He gave a history of pimples on his penis—one each day for three days—he also received treatment at Hot Springs. V. O. D. 10/40 and V. O. S. 10/50. Fields of vision contracted. Retina and choroid were both involved. The case had all the appearances of retinitis pigmentosa.

*DISCUSSION.*

Dr. E. T. Boyd said the history is not one which would lead you to think of retinitis pigmentosa. He thinks the disease may be specific.

Dr. Wm. C. Bane considers this pigment atypical.

Dr. E. R. Neeper also considers the case atypical as there is no history of night blindness. The pigment isn't typical.

Dr. J. A. Patterson said not all cases of retinitis pigmentosa are typical. He believes it is very definitely a case of retinitis pigmentosa.

Frank R. Spencer,
Boulder, Colorado. Secretary.

## OPHTHALMOLOGICAL SECTION OF THE ROYAL SOCIETY OF MEDICINE.

At the meeting of this Section held in London on June 13th, the chair was occupied by the President, Mr. William Lang, F. R. C. S. A sympathetic reference was made from the chair to the loss by death of Mr. Walter Jessop, who was, at the time of his demise, Honorary Librarian of the Bowman Library of the Ophthalmological Society of the United Kingdom. To it, Mrs. Jessop had generously bequeathed Mr. Jessop's private scientific library.

### The Aetiology and Treatment of Iritis.

The Section then devoted itself to a debate on this subject.

The President, in opening the discussion, remarked that if Fellows of the Section could agree as to the cause of iritis, they would be in a strong position, if that should be politic, to advise the proper authorities to introduce such measures as were calculated to prevent much ill-health, a great amount of loss of sight, and untold injury to the community.

In an analysis of 200 cases of iritis in his private practice, he found that the causes and percentages were as follows: Syphilis, 6% ; gonorrhoea, 12% ; tubercle, 11% ; general affections, 8.5% ; other causes, 25.5% ; pyorrhoea, 37%.

At one time, syphilis was regarded as the chief cause of iritis, and Mr. Lang thought it likely that hospital figures would show a higher percentage than 6. With the employment of the latest forms of treating that disease, however, he believed it would eventually be the rarest of the causes, because, under that treatment, gummata of the iris and ciliary body could be made to disappear without the disorganization of the eye formerly seen.

Hospital cases would also probably show a higher percentage owning gonorrhoea as a cause than 12. As the infection was now known to lurk for a long time in the genito-urinary system, relapses of iritis would be largely preventable by local treatment applied to that region.

Complicating sources of infection in cases of iritis included pyorrhoea, and to these relapses of the condition were largely due.

Cases of iritis in which tubercle was the cause affected the sexes equally in his series, and in this form the average age of the patients was 25 years, all but two being between 16 and 35. Tubercular iritis should be treated on the same lines as tubercle of the lung—good air, graduated exercise, food rich in fats, and such local measures as would subdue inflammation and prevent closure of the pupil.

Seventeen of the President's series were associated with gout, or diabetes, or herpes of the fifth nerve, or influenza, or pneumonia. Ten of the patients had some septic focus on the skin, or involving a mucous surface or cavity. In 6 there was disease of tonsils, and 23 had an affection of the alimentary tract, while in 7 there was disease of the genito-urinary system. One case of iritis followed a smart blow on the eye, and another had iritis as a sequel of sympathetic ophthalmia. In no less a number than 74 of the 200 patients no other cause for the iritis was found than pyorrhoea. When these cases were seen early and the defective teeth or stumps removed, there was a rapid clearing up of the iritis. In 22 of the remaining cases, also, pyorrhoea existed as a complication of other conditions. In the 74 cases of pyorrhoea alone, the women were twice as numerous as the men. As 48% of the total patients had septic mouths, the practical aid of the dental profession in the prevention of this appalling state of things would be most valuable; it seemed to be at the basis of a number of diseases.

Sir Anderson Critchett, Bart., said he had found great benefit from the suggestion made by Sir John Tweedy, forty years ago, to employ the sulphate of duboisine as a powerful mydriatic in cases in which atropine was powerless to break down synechiae. It was never necessary to use more than 2 grs. to the oz., and great care should be taken that none passed down the duct into the throat, as its toxic effects might be alarming. In acute cases of iritis, he believed greatly in the employment of leeches. In more chronic cases he kept small open places on the temple. He agreed that gonorrhoea was a frequent cause of iritis, and he paid a tribute to the work on this subject which was done by Dr. John Griffith before his regretted death. He, the speaker, had largely employed iridectomy for iritis since, thirty years ago, the late Mr. Nettleship introduced the subject. He quoted Mr. Nettleship's opinions at length, one of which was that it was sometimes the ophthalmic surgeon's duty to advise iridectomy against recurrent and obstinate iritis, though it should be held in reserve until other plans of treatment had been efficiently tried. Few things had so impressed him, Sir Anderson, during his long professional life, as the extraordinary value of iridectomy, as both a preventive and a curative agent, in the cases in which it was suitable. As perfect quiescence on the part of the patient was necessary, he almost invariably gave a general anaesthetic. He used the keratome, as it made the cleanest cut. It was necessary, in most cases, to go down almost to the pupillary margin, withdrawing with a gentle, almost coaxing movement. He quoted one case in which iridectomy resulted in the saving of the last remains of sight left to the patient in one eye, his only useful one.

Mr. J. G. Turner dealt with the causative aspect of the question, from the standpoint of the odontologist. He spoke of his work in association with the late Dr. John Griffith, in tracing the connection between dental sepsis and eye diseases. Their starting point was the undoubted connection between iritis and gonorrhoea. They found much gonorrhoeal iritis, but little syphilitic. Among other things, they found that when every defective tooth and stump in the mouth of a patient was cleared out, a co-existing corneal ulceration quickly ceased. When he cleared one defective mouth for eye disease, the nasal catarrh which the patient had also cleared up. Everyone was now probably agreed that the cause of iritis was probably an infection, either a living germ, or its toxin. Seldom was it due to direct contiguity of diseased tissue. The latter probably accounted for extra-bulbar conditions, and, afterwards, absolute loss of the eye. The obvious duty, on the agreed hypothesis, was to search the body for the commonest sources of infection. Pre-eminent among these was the mouth, though some nasal surgeons claimed that title for the nose.

Very seldom did one see a mouth which was free from the possibilities of infection; indeed, septic mouths were often regarded as normal mouths. The mouth was the abode of sepsis from childhood until every tooth had been lost, and then these gave place to an artefact factor in the shape of a denture. When the periodontal sulcus was invaded, it represented a practically undrainable area of sepsis. Around the necks of teeth were many germs. The gum edge clung closely to the neck of the tooth; it was a potential space only. After eating sticky food, a sticky deposit was left on the tooth neck, and this extended with time. On the toothward side of the gum a very tangible flap of gum formed, and probably an area of ulceration, and on cutting away the gum flap, pink granulation areas became revealed. Sometimes the pus came from bone at the bottom of the cavity, and then it was more serious for the tooth. The ulcerations were not necessarily acute, but they were permanent; always discharging, always absorbing. The gum bled on the slightest touch, because of the granulation-covered area. It was easy for the sepsis from the inflamed gum margins to reach the general systemic circulation. The inflammation of gum margins was found at all ages of life; from the age of 12 onwards, one could demonstrate pockets of, perhaps, one-half an inch in depth. A thick pad of apparently healthy gum between teeth should be regarded with suspicion, as it was practically always a source of infection. Dead teeth were always septic; in a very large series examined by a German, every one was septic. The reason was that the fibrils died, and nothing had been found to penetrate them for cleansing purposes. Every time a crown was put on to a dead root in the mouth, the chance of sepsis was being taken.

The obvious answer to the President's question as to prevention of oral sepsis, was, "Don't have any teeth." Short of that, one could only aim at efficient cleansing of the teeth, a very difficult matter, and one needing expert teaching. None of the cleaning usually done reached the gum edge. Instructed nurses should be sent to teach children in schools how to properly clean their teeth. A further preventive would be the avoidance of sticky foods, and a return to coarser grinding. A careful examination of skulls of men and animals of various periods showed that meat-eaters had no dental decay or pyorrhoea, while eaters of sugary and starchy foods had both in abundance.

Dr. Lyon Smith referred to his work on arthritic conditions, extending over eight years. He approached the subject by a study of vitiated blood conditions, most of which he attributed to bacteria, though foods themselves probably played a part. Certainly toxins and their producing bacteria prepared the ground for such conditions as iritis, the element of strain or trauma deciding the site of manifestation. He had long regarded it as sound practice to have the refraction of every arthritic patient carefully tested by an expert. In 1915 he published an account of a test by direct haemolysis of the presence of bacterial toxins in the blood; he did 450 examinations of blood, mostly from patients who were suffering from chronic rheumatism or gout. The common causal microbes he had found to be the influenza bacillus, that of tubercle, of gonococcus, streptococci, staphylococci, and the bacillus pyocyaneus, the latter being a very common inhabitant of the alimentary canal. Iritis he regarded as a not infrequent sequel of an attack of influenza. He had seen many cases of iritis cured by general inoculations. In the case of the eye very minute doses must be commenced with; with tuberculin, for instance, it should be something less than 1/250,000th of a m g. The reason for this was apparent in the light of recent experiments in colloid chemistry.

Captain A. W. Ormond thought Mr. Turner, in his remarks, proved somewhat too much, otherwise, why was not iritis much more common, especially in the out-patient departments of hospitals, where the condition of the mouths of patients was deplorable. He raised the question whether acute rheumatism—rheumatic fever—ever caused iritis. The number of cases of acute rheumatism associated with iritis, in London, was practically negligible. He considered that iritis was always a result of sepsis, and if that were granted, much help was obtained on the question of aetiology. He did not think it was possible for errors of refraction or eye-strain to cause iritis; and in regard to gout, a more precise and scientific definition of that condition was much needed. He also asked for information as to the length of time during which the gonococcus could remain active in the tissues; he had understood that its life-history there was short. He thought late and mild cases were due to a particular organism. In the treatment of iritis, he, like Sir Anderson Critchett, used leeches for acute cases, and much comfort was experienced from the warm electric coil applied through a bandage.

Mr. Ernest Clarke supported Dr. Lyon Smith's point as to strain or trauma deciding the site of the manifestation, and for 25 years his practice had been to estimate the refraction of all his iritis cases after the acute attack had passed. In many cases the correction of this had stopped recurrence, and avoided iridectomy.

Dr. Lakin said the important question was, Why should people with a systemic infection get iritis? A second query was as to whether the condition, in its causation, was microbic or toxic. He could not remember an instance of a toxic case being associated with a local outpouring of inflammatory fluid. A case of iritis was vascularised, and an exudate was present. Hence he strongly supported the idea that iritis was a microbial affair, and in addition an embolic process was at work; the organisms were carried as minute emboli and laid down in the iris.

As to the reason the iris was one of the spots selected by the organisms, at the junction of iris and ciliary body there was an abrupt change from a highly vascularised to a practically avascular state of matters, and the latter, owing to the decreased quantity of oxygen to the part, formed an easy resting place and multiplying ground for organisms. A very important point which had been put forward was that the iris was vascularised by a terminal artery. He believed there was a variety of quiet iritis in which the disease was practically overlooked because of the absence of redness or pain, though perhaps the patient gradually became conscious of failing vision, and on consulting an ophthalmic surgeon, he probably found symptoms which had come on without the patient's knowledge. He believed some low form of infection caused those cases.

Mr. Leslie Paton related a case in which direct proof was afforded of the connection between a foul stump and the cause of the eye infection. The patient had a foul tooth stump, and iritic adhesions, with hypopyon. From both the onyx and the stump, staphylococcus aureus and micrococcus tetragenus were recovered, every precaution having been taken in the investigation. He proceeded to discuss the association between phlyctenule and infection by tubercle bacilli.

The President replied on the various points raised.

# CORRESPONDENCE

## A NOTE ON THE PRODUCTION OF HOMATROPINE.

The high cost of homatropine has always suggested to my mind that somebody must be making a terrific rake-off on this drug, and in view of the prospects of a homatropine famine, I wrote to Parke, Davis & Company asking them why they could not undertake to produce it at a reasonable cost; assuring them that if they did so they could depend upon the support of practically all the ophthalmologists in this country. The answer which follows seems to me to be of some general interest:—

"Noting that you are very much interested in the matter of homatropine, the writer would like to explain to you that you perhaps have no appreciation of the difficult processes involved in the production of this substance from ordinary atropine and the fact that it requires a lot of special apparatus and also special chemical supplies to carry out the necessary transformation.

"Roughly speaking, homatropine is made by passing hydrochloric acid into a heated mixture of tropine and mandelic acid. First of all, we have to make mandelic acid by treating benzaldehyde with potassium cyanide and hydrochloric acid and this means that we have to go back still farther and get the necessary quantity of benzaldehyde, which is a very scarce article at the present time. You will see above that it is also necessary to have tropine, which is made by a very delicate process, involving the hydrolysis of atropine or hyoscyamine.

"The writer may explain that homatropine has been made almost altogether by those firms that manufacture ordinary atropine, from belladonna or hyoscyamus. In other words, in producing atropine, a certain amount of tropine is always formed and is extracted from the mother liquors. This makes the tropine practically a waste or byproduct of no value and it serves to materially reduce the cost of producing homatropine.

"As much as we sympathize with you and your colleagues in this dilemma, all that we can promise at the present time is that we expect to begin the production of ordinary atropine in the course of the next few weeks, this being dependent upon our obtaining the necessary supplies of imported crude drug. If we can get the atropine process going successfully, we will then have the necessary material to make a start upon the production of homatropine.

"In closing, we wish to assure you that our hesitation in undertaking this matter is not due to our not appreciating the need of this substance nor the fact that we do not enjoy selling goods at a financial profit. It does happen just now however that we are extraordinarily busy and we find that the purchase of every piece of apparatus or of every pound of material out of the ordinary run of daily consumption involves a heart-breaking delay of anywhere from six weeks to eight or nine months." H. G.

## THE NEW MERGER JOURNAL.

Readers of the OPHTHALMIC RECORD will surely be much interested in the progress of the proposed consolidation, about which notice has been given in this and other periodicals for several months past. No better account of the aims and prospects of the forthcoming periodical can be furnished than that which has appeared from the pen of Dr. Edward Jackson in the July number of *Ophthalmic Literature*. It was there stated that, beginning with January, 1918, there will be published a new monthly ophthalmic journal. It will combine: *The Annals of Ophthalmology, The Ophthalmic Record, Ophthalmology, The Ophthalmic Year Book and Ophthalmic Literature.*

There is also reason to expect that at least one other ophthalmic journal will enter into this merger. Besides producing a better ophthalmic journal, the consolidation thus brought about will avoid most of the duplication of matter that has heretofore been so noticeable in the periodical literature of ophthalmology published in the English language.

This journal will be published primarily in the interests of the ophthalmologists who read it. Every suggestion that tends to the more perfect attainment of this object will be welcomed. It will not be published simply to furnish some writer or group of writers a medium of publication. It will not meet the request of one skeptic that it should give the writer a "guarantee that one paper a year would be published if desired." But it will publish as many articles each year as any author will write, provided they are of important interest to the ophthalmologist, clearly written, and as brief as the presentation of the main thought permits.

To the authors of such papers this journal will bring a wider circle of interested readers than they could obtain through any other channel. In the list of journals given above are the three that have today the largest lists of subscribers of any ophthalmic journals published in America. The new journal will probably start with the largest list of subscribers of any ophthalmic journal published in the world; and it will offer its contributors the best presentation of their papers, both as to paper, presswork, proofreading and illustrations, that it is possible to secure in America.

The journal will be controlled by its readers. It will be owned by a corporation in which it is hoped that the largest possible number of ophthalmologists will hold stock and join in choosing its managers. Special provision will be made to prevent the stock from becoming of speculative value, and to secure that it shall always remain in the hands of ophthalmologists. It is believed that the close touch and sense of proprietorship, that have contributed so much to the phenomenal success of the Journal of the American Medical Assocation and of the journals of the stronger state medical societies, can be made even more effective for a special journal, whose readers share more closely in thought and sympathy with one another, and have more of common interest than have the readers of a general medical journal.

This journal will invite the assistance and active support of every one who desires to do good literary work in the domain of ophthalmology. Not only will the workers on the editorial staffs of the present journals be brought together and organized, but those who have heretofore had no such connections will be invited to share in the labor of producing this ophthalmic journal. The conditions attached to such a connection will be that each collaborator shall be an honorable member of the profession; that he shall be able to do the work he undertakes; that he shall endeavor to do the best work he is capable of, and be ready to learn how it may be done better.

In pursuance of a policy of calling out all the resources of the profession we ask now for criticisms of the features of existing journals that are desirable or undesirable to perpetuate, and especially positive suggestions with regard to the new undertaking. These will be placed before those who are to be charged with their execution, and they will be carefully considered. They cannot all be adopted, but they may all contribute something to a broader view of the needs and possibilities of an ophthalmic journal to be developed by and for the ophthalmologists of America.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 25 E. Washington, St., Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Dr. B. F. Baer, Jr., has been commissioned ophthalmologist for Base Hospital No. 20 of the University of Pennsylvania.

An addition to the Institution for the Blind, at Vinton, Iowa, will be erected at a cost of $20,000.

At the annual meeting of the Maine Medical Association, held in Portland last June, Dr. James A. Spalding of Portland was elected president for the ensuing year.

By the will of Mary Rose Harris of Chicago the Perkins' Institute for the Blind, the Massachusetts Institute for the Blind, the Boston and Pasadena hospitals have each been bequeathed $5,000.

Dr. Christian R. Holmes, Cincinnati, has been appointed director of the local medical examining board for the Aviation Corps. The outdoor clinic of the Cincinnati General Hospital will be utilized for examinations.

Dr. Norman Craig Shierlaw, one of the most promising young ophthalmologists of Adelaide, Australia, died in France on April 11, as the result of wounds received while in active service. He was a captain in the Australian Medical Army Corps Reserve, and had been awarded the Military Cross.

There has been a marked reduction in eye injuries in the plants of the American Locomotive Company since the established use of protective goggles. During the years 1910-1913, before goggles were introduced, the average number of accidents was 448. In 1914 the number was reduced to 86, and in 1915 to 52.

At a convention of optometrists held recently in Columbus, Ohio, there was exhibited a slot machine so constructed that by turning certain levers and screws a person could test his own vision, and on finding his proper reading correction he could insert 50 cents in the slot and receive a pair of eyeglasses.

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Dr. Charles W. Richardson, Washington, D. C., of the Sub-Committee of Ophthalmology and Otolaryngology, Council of National Defense, called a joint meeting in Chicago for August 22, 1917, for the purpose of discussing those ways and means by which the ophthalmologists and otologists of the country can be of most service to the country in this crisis.

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At the annual meeting of the Pacific Coast Oto-Ophthalmic Society, held in Spokane, Wash., June 18 and 19, Salt Lake City was selected as the next place of meeting and the following officers were elected: President, Dr. Alexander R. Irvine, Salt Lake City; vice presidents, Drs. Harrington B. Graham, San Francisco, and Richard W. Perry, Seattle, and secretary-treasurer, Dr. Robert R. Hampton, Salt Lake City.

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Dr. John H. Hewitt, Terre Haute, a member of the Indiana state board of health, is reported to have asked the Vigo County Commissioners to condemn the town of Taylorville, and to order the 800 people who live there to move away, because of the prevalence of trachoma. In case the commissioners refuse to act, a permanent quarantine, it is said, will be ordered.

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The following ophthalmologists in Colorado have received commissions in the Medical Reserve Corps, U. S. A.: Dr. C. A. Filmer of Colorado Springs, Drs. Wm. M. Bane, Wm. C. Finnoff and W. A. Sedwick of Denver. Practically all of the other members of the Colorado Ophthalmological Society have either spent a part of their time in examining recruits, or are going to give more of their time to this work as soon as the work is a little better organized.

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General Crowder has sent this caution to examining physicians of the local boards:

"Surgeon general advises that in order to prevent the terrible ravages which result from the introduction into the army of that dread disease of the eyes known as trachoma, the lids of every recruit be examined to insure the absence of this disease and that any border line or suspicious cases be referred to an ophthalmic surgeon especially qualified in this line."

A five-story structure which is to house the medical department of the University of Cincinnati has just been completed and is ready for equipment. Dr. Christian R. Holmes is given the credit of being the principal factor in the success of this undertaking. In addition to his untiring efforts, he and his wife contributed $10,000 towards the building fund. The sum of $450,000 was contributed by the citizens of Cincinnati. Dr. Holmes declares that Cincinnati is to be made the center of medical research.

Members of the Ute tribe of Indians in Utah have recently acquired the habit of wearing spectacles. A chief started the style by purchasing a pair of yellow-lens glasses and in a few days so many Indians demanded similar adornment that the drummer's supply was exhausted and he had to send for more. It is said that there are nearly two hundred men, women and children in this tribe who now possess spectacles. Some indicate their social position by wearing three pairs at a time. Glasses with heavy tortoise shell rims have proven popular.

Bourdier concludes his study of treatment of wounds of the eyeball with statistics showing the constant improvement as the war progresses, and suitable measures can be applied early. De Lapersonne has called attention to the gravity of injury from minute scraps of metal. Fully half of the totally blinded lost their vision from bilateral iridocyclitis following a comparatively insignificant injury of this kind. All the evidence is in favor of early extraction of the foreign body. The crystalline lens seems to tolerate the presence of a foreign body better than the vitreous body. Bourdier says that avoidable accidents were responsible for 344 out of 1,021 wounds of the eyeball in his service since the war began, and in over 35 per cent of the 314 penetrating wounds. All protecting goggles interfere with vision, reduce the visual field, and they cannot be used at all at night.

An invitation to visit and inspect the aviation training school at Rantoul, Ill., was recently accepted by Maj. Casey Wood and several members of his staff of examiners. At Champaign the Chicago visitors were joined by President James and the President of the board of trustees of the University of Illinois and the entire party was taken by automobiles to the aviation field, which is about sixteen miles from Champaign. The camp covers a square mile and the level, even surface of the ground here is particularly well adapted for this purpose. The buildings, hangars, cement drives, etc., are rapidly nearing completion, but there are at present only twenty aeroplanes in service, a totally inadequate number. In a short time, however, they expect to receive additional consignments at the rate of ten a month. There are approximately 150 men in training at the present time, so that it is necessary for some of the men to begin their flying instruction as early as half past four in the morning. In order to have first-hand information of conditions experienced by the aviator, Maj. Wood and Lieutenants Small and Earel were given flights up to an altitude of about 2,000 feet. From the viewpoint of the ophthalmologist this experience is convincing that the present high standards of requirement for eligibility to this branch of the service should be strictly adhered to. The effect of "glaring" upon the eyes cannot, of course, be taken up at the time of examination, but this should be observed and carefully noted after the candidate has had a few weeks of instruction. Perfect visual acuity, binocular single vision, normal muscle balance, normal color sense and good stereoscopic vision, are absolutely essential requirements for a safe aviator.

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*Third Colorado Ophthalmological Congress.* Sessions of this well known society are arranged annually by the officials of the Colorado Ophthalmological Society, the 1917 congress having been held in Denver on August 9th and 10th. The Committee of Arrangements were Edward Jackson, Edward R. Neeper, James A. Pattee, Melville Black, Wm. C. Bane, while Dr. Wm. H. Crisp acted as secretary.

The attendance upon the congress, although for obvious reasons not so large as in previous years, was a representative one from all parts of the country.

The sessions opened in the Medical Department of the University of Colorado on the afternoon of August 9th by an exhibition of patients, instruments and specimens. Dr. Crisp exhibited a case of congenital paralysis of the external rectus, while some very interesting demonstrations of pathological conditions found in glaucoma were given by Dr. Marcus Feingold of New Orleans.

The evening session was entirely taken up by a discussion of the paper by Major Casey Wood, in charge of the medical examination of candidates, Aviation Section, Signal Corps, U. S. Army for the Chicago district.

The audience included members of the medical society of the city and county of Denver and their friends. The audience exhibited much interest in the paper and its discussion.

On the morning of August 10th the following papers were presented: Role of the Ductless Glands in Ophthalmology, by Dr. Frank R. Spencer; The Importance of the Temperature Curve, and Early Recognition of Tuberculous Retinitis, by Dr. Harry A. Smith; A Case of Massive Retinal Exudate by Dr. Melville Black; Membranous Conjunctivitis of Long Duration Cured by a Neglected Remedy, by Dr. H. H. Stark; Vernal Conjunctivitis, by Dr. Edward Jackson.

In the afternoon Dr. William C. Bane read a paper on Cyst of the Dural Sheath of Optic Nerve; Dr. Marcus Feingold read one on Essential Atrophy of Iris, and Dr. Harold Gifford read a paper on Spontaneous Cure of Cataract, a Cause, Not a Result of Glaucoma.

Although there were no formal entertainments provided, yet every visitor had ample opportunity to see the sights of Denver, and there were a number of excursions carried out in connection with the congress. The attractions included Colorado Springs, Manitou, Pike's Peak and the region of the Pike's Peak Forest Reserve, the Denver Mountain parks, Estes Park, and the new Rocky Mountain National Park, seventy miles northwest of Denver, reached by automobile. The above places are connected with Denver by good roads.

## NEW BOOKS

Homeopathic Therapeutics and Ophthalmology, by John L. Moffat, B. S., M. D. O., et A. Chir.

Congenital Word-Blindness, by James Hinshelwood, M. A., M. D., F. R. F. P. S. Glasg. H. K. Lewis & Co., Ltd., 136 Gower street, London, W. C. 1. Price $1 net.

# CHICAGO EYE CLINICS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 A.M. | Richard S. Pattillo (P.-G.)<br>G. W. Mahoney (Poli.)<br>R. B. Stephenson (P.-G.)<br>Carl Wagner (E.E.N.T.) | *Geo. F. Suker (P.-G.)<br>C. H. Francis (Poli.)<br>A. Duncan (P.-G.)<br>A. G. Wippern (E.E.N.T.) | W. F. Coleman (P.-G.)<br>S. M. Hager (Poli.)<br>H. N. Lyon (P.-G.)<br>Carl Wagner (E.E.N.T.) | G. W. Mahoney (Poli.)<br>Rich'd S. Pattillo (P.-G.)<br>R. B. Stephenson (P.-G.)<br>A. G. Wippern (E.E.N.T.) | C. H. Francis (Poli.)<br>R. B. Stephenson (P.-G.)<br>J. A. Cavanaugh (E. E. N. T.) | S. M. Hager (Poli.)<br>C. W. Hawley (P.-G.)<br>H. J. Morlan (P.-G.)<br>A. G. Wippern (E.E.N.T.) |
| 10 A.M. | Brown Pusey (N.W.U.)<br>Geo. T. Jordan (N.W.U.)<br>Robert Blue (N.W.U)<br>Every day, 10-12 A. M.<br>Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) | Harry Gradle (E.E.N.T.) | J. R. Hoffman (E.E.N.T.) |
| 1 P.M. | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>E. V. L. Brown (County)<br>and<br>Geo. F. Suker (County)<br>Daily, 2:30 P. M.<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffmann (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*H. W. Woodruff (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>Oliver Tydings (E. E. N. T.) | W. Allen Barr (Inf.)<br>*Frank Allport (St. Luke's)<br>*Frank Brawley (St. Luke's)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>*Paul Guilford (St. Luke's)<br>*Casey Wood (St. Luke's)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>W. A. Fisher (E.E.N.T.) | M. H. Lebensohn (Inf.)<br>Willis O. Nance (Inf.)<br>D. C. Orcutt (Inf.)<br>N. E. Remmen (Inf.)<br>Emily Selby (Inf.)<br>*Oscar Dodd (Inf.)<br>C. A. Leenheer (Inf.)<br>D. W. Eiss (Inf.)<br>E. R. Crossley (Inf.)<br>C. C. Clement (Inf.)<br>H. W. Woodruff (Inf.)<br>W. A. Fisher (E.E.N.T.) | W. Allen Barr (Inf.)<br>E. K. Findlay (Inf.)<br>Wm. E. Gamble (Inf.)<br>J. B. Loring (Inf.)<br>S. L. McCreight (C.C.S.)<br>Robt. Von der Heydt (Inf.)<br>L. G. Hoffman (Inf.)<br>A. P. Hunneman (Inf.)<br>M. Goldenberg (Inf.)<br>Francis Lane (Inf.)<br>H. Walker (Inf.)<br>Oliver Tydings (E. E. N. T.) |
| 3 P.M. | *Wm. E. Gamble (U. of I.)<br>Wm. H. Wilder (Rush)<br>H. S. Gradle Daily 3-5 (E. M. D.) | R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.)<br>*Wm. E. Gamble (U. of I.) | Wm. H. Wilder (Rush)<br>R. J. Tivnen (M.H.) | W. Allen Barr (C.C.S.) | Geo. F. Suker (P.-G.) 2-5<br>H. Cuthbertson<br>A. Duncan |
| 4 P.M. | W. F. Coleman (P.-G.)<br>H. N. Lyon (P.-G.) 2-5 | C. W. Hawley (P.-G.) 2-5<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | J. B. Loring (U. of I.)<br>E. K. Findlay (U. of I.)<br>G. F. Suker (P.-G.) 2-5<br>H. Cuthbertson (P.-G.) | C. W. Hawley (P.-G.)<br>J. F. Campbell (P.-G.)<br>H. J. Morlan (P.-G.) | W. F. Coleman (P.-G.) 2-5<br>H. N. Lyon (P.-G.) | |

*Special operative eye clinic.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 1844 W. Harrison Street.

E. M. D.: Emanuel Mandel Dispensary, 1012 Maxwell St.

County: Cook County Hospital, W. Harrison and Honore Streets.

Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.

M. H.: Mercy Hospital.

Poli.: Chicago Policlinic and Hospital, 221 W. Chicago Avenue.

P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.

N. W. U.: Northwestern University, 2431 Dearborn Street.

Rush: Rush Medical College, W. Harrison and Wood Streets.

St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

U. of I.: College of Medicine, University of Illinois, Congress and Lincoln Streets.

THE
OPHTHALMIC RECORD
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# HEMIANOPSIA.

BY
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Hemianopia, or hemianopsia, is defined as a loss of half the visual field in one or both eyes. Our interest is not limited to half losses, however; because quarter or even lesser losses may be just as characteristic of lesions located along the optic pathway. On the contrary, a larger loss than a half may be expected under certain conditions.

The line separating the active and non-active portions of the retina may be either a horizontal or a vertical line; in other words, we may have either a vertical or a horizontal hemianopia. If the lesion is located posterior to the optic thalamus, the anopsia may be either a quarter or a half or a modification of either. Lesions anterior to this but posterior to the chiasm may be either vertical, quadrantial or irregular in form. Lesions of the chiasm may vary from quadrants up to various forms made by additions of quadrants or less.

Anterior to the chiasm, monocular horizontal defects or sectors may be found.

Homonymous lesions are the rule in cases with lesions posterior to the chiasm. Heteronymous lesions are rare and mean a specially located chiasmal defect.

Monocular Hemianopsia indicates lesion anterior to the chiasm.

Monocular Hemianopsia will be diagnosed by the oculist in cases which come to him complaining of poor vision. The rare form of heteronymous hemianopsia, known as Bi-Temporal, will very rarely be found and is usually picked out of cases complaining of headaches. The oculist will rarely have the opportunity to see, first hand, the usual case of Homonymous hemianopsia. It is the easiest to diagnose and the general practitioner should be able to find these cases. Every practitioner of medicine should be conversant with the simple form of tangent perimetery which employs the "goods provided by the Gods"; the opposite eyes of the patient and the physician, who are seated about twenty-four inches apart, and the hand on the side of the eye being examined. The eye not under examination is covered, the hand of the physician is the test object and the examiner's eye is the fixing object and standard gauge, also.

By this simple method the family physician can pick out many cases which are now overlooked. Indeed, it may be the only way these patients can be examined, because not a few of them are unable to hold their gaze fixed upon the dot on the perimeter or hand campimeter and one is compelled to depend upon the turning of the eye toward the testing hand as proof of notice because the usual method of asking the patient to speak when he or she sees the test cannot be relied upon, because of dulled mental action. The cases seen by the oculist are usually apoplectic in origin, but it is a great mistake to assume that the patient must pass into coma, breathe stertorously, suffer hemiplegia and have irregular pupils in order to justify a suspicion that there has been a lesion of the brain producing homonymous half losses. Nor is visual acuity a guide because the patient may read 15/15 or the vision be corrected by a glass so the patient can read the normal line but hemianopsia exist just the same. There is usually a difficulty in reading which the patient is aware of but seems unable to explain. It may be an error, but it is my present belief that patients having a lesion on the right side of the brain, posterior to or in the vicinity of the Thalamus, producing a half loss, are not as sick as those having the lesion on the opposite side of the brain. This does not mean that claim is made that there are less localizing symptoms when the lesion causing the loss is right which, however, is the case; but that these right sided lesions seem to make the patient less sick. They seem to have less coma, less depression and may even be up and about in spite of the vascular accident which causes the well known results. Whether this difference is due to the fact that several functions located in the posterior portion of the cerebrum are to be found more active, at least, on the left side, is a matter of conjecture, but I will mention a number of cases of right-sided lesions and a number with left-sided lesions and ask the reader to draw his own conclusions. First we will offer a few cases of hemianopsia duplex where the initial and secondary attack can be contrasted. Mrs. C. awoke one morning and found to her surprise that she could not see to the left. While not feeling as well as usual for a time, she was up and about as usual and did not even send for her physician. A year later she suffered what she calls a "shock"; the right hand was paralyzed, she was comatose and ever since this second attack, her vision has been of the classical tubular, barrel or telescopic type. The contrast between the two attacks is evident.

Mr. B. has been growing feeble and has been having difficulty in walking for some time. He awoke one morning and said he did not see well but was up and about as usual. He soon came to my office where the field was taken (Illustration No. 1) and the characteristic loss shown. About six months later, he awoke and could not see at all; he was word blind and pulse rickety. He grew worse and died in a couple of weeks.

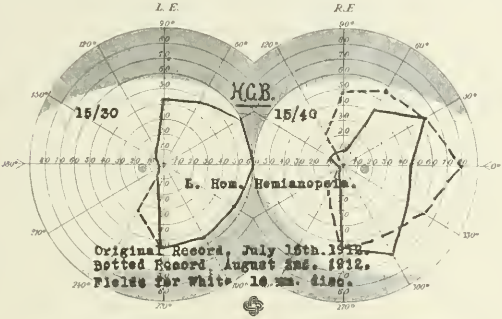

L. E.
R.E
H.C.B.
15/30
15/40
L. Hom. Hemianopsia.
Original Record, July 15th.1912.
Dotted Record, August 2nd. 1912.
Fields for White, 10 mm. disc.

Illustration No. 1.

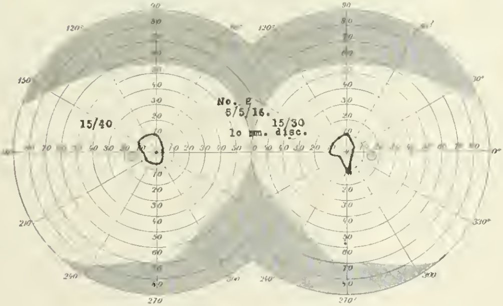


Illustration No. 2. Hemianopsia Duplex.

Mr. V. who came to us with telescopic vision, gives the history of a "stroke" followed by coma for several days, right hemiplegia and inability to see well to the right. He recovered the use of his limbs after a few weeks and went back to work. After an interval of a year, he became suddenly blind while walking down the street. He held to the fence for a while and recovered enough vision to get home and appeared at the clinic with the typical field shown in Illustration No. 2.

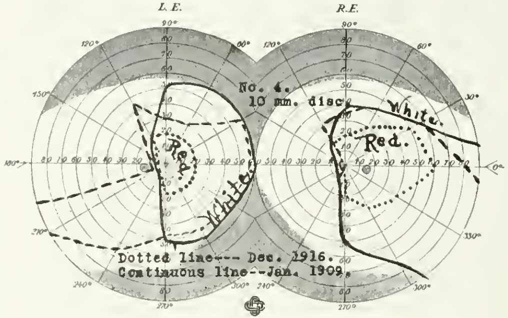


Illustration No. 3. L. Hom. Hem. Records, 8-year Interval.

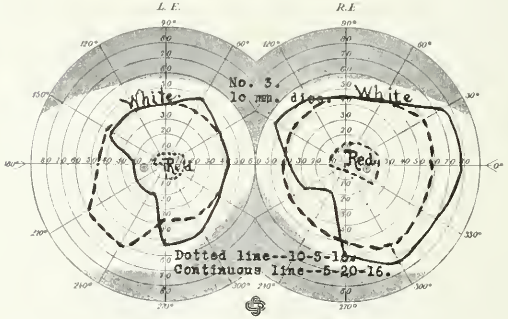


Illustration No. 4. L. Hom. Hem., 5 Months' Interval.

Mr. S. was induced to call by his daughter who said he complained of poor vision. "Father does not see well. He has vomited once or twice and has a dull headache." He had not been confined to his bed at all, but has a left homonymous hemianopsia.

Mr. Sh. was riding on the subway and suddenly lost his vision. Everything was clouded and he was confused for about twenty minutes. He did not lose consciousness nor lie down but was able to take the trolley home from the subway terminal. He has a left half loss as shown in Illustration No. 3.

Mr. Sch. is another of these left-sided losses but he follows the accepted idea of these cases as he had a stroke, lost the use of the left side of the body, was in coma for several hours, but recovered the use of his limbs in about two weeks. This case is included here in order to give a fair idea, as it would not be proper to include only those cases which conform to our own ideas and tend therefore to prove our contention. His field is shown in Illustration No. 4.

Mrs. S., who has diabetes and nephritis, suddenly passes into a coma. When she has regained consciousness, there is a left half loss. We do not think the coma due to the lesion producing hemianopsia but to the diabetes and nephritis. Her field is shown in Illustration No. 5.

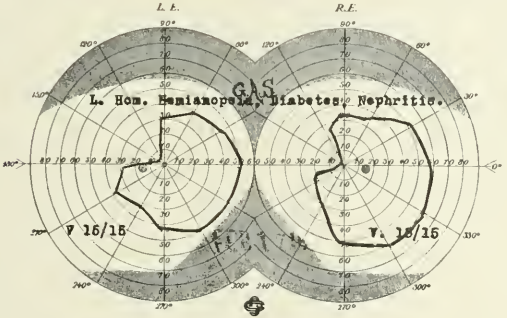


Illustration No. 5.

It might be suggested that the right sided lesions are smaller than those on the opposite side but that does not seem to answer the question. Perhaps a future group of cases may be more like the accepted idea and the contrast so noticeable in this group may be missing.

The cases with left-sided brain lesion and right half losses are as follows: Mrs. A. has had a stroke and does not see well since that experience. She was comatose and there was right hemiplegia. At the time of her visit, she is unsteady on the right leg, her memory is poor and she cannot correctly arrange the figures which make up her house number. She has right homonymous hemianopsia but goes about alone.

Mr. C. suffered an attack which was diagnosed a pulmonary embolism. There were signs of local pulmonary consolidation, collapse, cold skin and coma. Two weeks after this, I saw him at his home and he had right half losses, cannot read or write or copy. Cannot tell the number of his house or carry on a conversation. The coma was evidently not caused by the lesion producing the hemianopsia. His field is pictured in illustration No. 6.

Mrs. B., at the age of thirty, suffers an attack of uraemia of pregnancy and albuminuric retinitis. She was in coma for ten days and awaked with right hemiplegia and hemianaesthesia. There was right homonymous hemianopsia, shown in illustration No. 7, and word blindness.

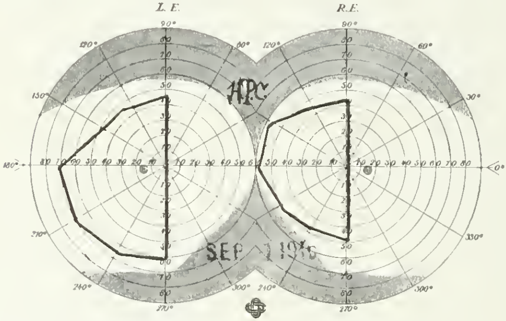


Illustration No. 6. R. Hom. Hemianopsia.

Mr. E., whose right-sided half loss is less than a half but more than a quarter, awoke one morning and could see nothing for some time. He complained of headache and vertigo and remained in bed for some days. He was soon up and about and his field is shown in illustration No. 8. His case was the lightest of all the left-sided cerebral lesions.

Mrs. S. had a stroke and was in coma for some hours and regained consciousness with the right side helpless. She was almost helpless at first but recovered in a few weeks except her speech. At first, she could only say one word, "fair." One year later she is unable to carry on a conversation because she cannot get the word she wants. The field is shown in illustration No. 9.

I think the six right-sided cerebral lesions with consequent left half losses of vision present a decidedly different picture than the left-sided cerebral lesions with right-sided hemianopia.

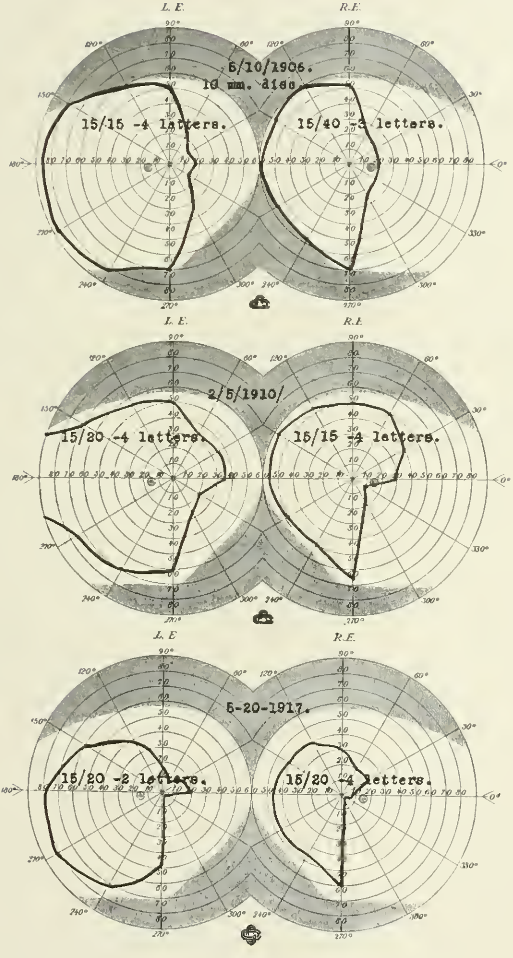


Illustration No. 7. R. Hom. Hemianopsia. First Record, 1905; Second, 1910, and Third. **1917.**

Can we not say also, that if our brethren who practice general medicine will look for those cases, more will be found and a positive opportunity for localization and correct diagnosis will be accepted.

As a general proposition, it would seem wise to make it a practice to examine the fields of vision in the simple manner suggested in all adults who have been seriously ill and complain of poor vision; all cases who say they do not see well to either side; all elderly people who do not see well or have loss of memory or inability to name objects readily.

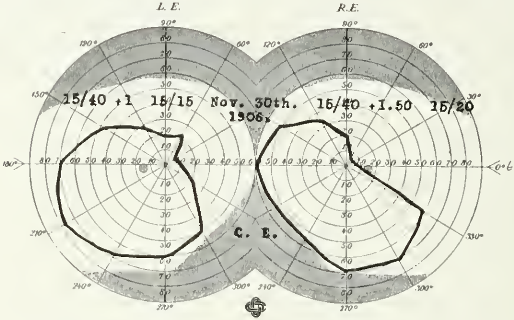


Illustration No. 8. R. Hom. Hemianopsia.

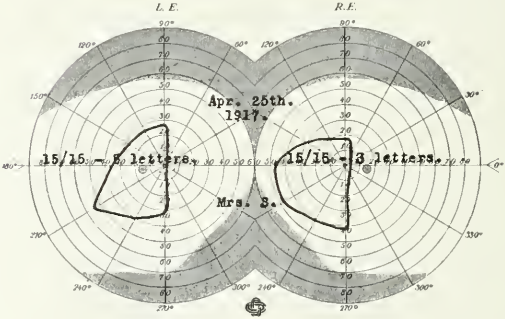


Illustration No. 9. R. Hom. Hem.

The fact that the illness is apparently not serious or the patient not confined to the bed should not deceive the attendant and reasoning by analogy, perhaps vascular lesions occur in other parts of the brain where there are no suggestive localizing symptoms to prove the occurrence.

As causative factors in these cases, nephritis is the most common. Uraemia has been present in two cases, undoubtedly nephritis as shown by low specific gravity, presence of a small quantity of albumen and an occasional cast, in five cases. Persistent low specific gravity with absence of albumen, casts or crystals with increased quantity has been noted in two cases. The urinary traits of two were normal and the rest did not present data along this line. The preceding applies to cases with lesions located near the ganglia or posterior thereto. The tract, nerve and chiasm cases were all specific, except the single bi-temporal hemianopsia, which was apparently a pituitary disease. The ages in the cases have varied from 30 to 82 years; but if we omit the youngest case, which was evidently due to a thrombus formed during uraemia, the youngest would then be 49. The symptom attracting attention of the patient most commonly has been difficulty with the vision. Some can only say that they do not see well while others will state that they do not see to either side as the case may be. Theoretically, the patients with right homonymous hemianopsia should have more trouble in reading than the left hemianopes and experience seems to confirm this. The act of reading is a much more complex one than most of us think. As an aid to the pedagogue and the psychologist, researches have been made even to the point of attaching an indicator to the eyeball to record its movements during the process of reading. The first note is that the eye does not move smoothly and evenly from place to place; it jumps from letter group to letter group in a very irregular manner. The area of macular region available for fine vision comprehends about four letters of average type at one glance or we may say that the eye if held in one position, four letters are all that can be seen well enough to read. The field of vision to the right of this highly specialized small macular area serves as a guide to keep the eye on the line as it jumps from letter group to letter group, and also gives a suggestion of the characteristics of the letter group next in order. There are more distinguishing characteristics of letters above the center of the line of letters than there are below. The upper half of a line of letters has been omitted for experiment and in the next trial, the lower half was omitted and it is easy to convince one's self of the truth of the observation and of the fact that the eye follows a path rather above the center of the line. Finally, we read by letter groups, or should if we are to read easily and well. It would then follow that the loss of the right halves would remove the guide which the peripheral field supplies and enables the eye to jump from place to place and the useful hint of what is coming next under direct view. The patients, having right-sided field losses, do have at first more trouble, at any rate, than those who have lost the other half of each field of vision. Sometimes these patients read the test type very slowly and are assisted very much by pointing to the letter to be read with the forefinger.

It has never been my privilege to examine a Hebrew with left homonymous hemianopsia, but it would be interesting to know whether in an individual who has been educated to read to the left instead of the usual way, the effect of a half loss on the left side would be the equivalent of a right half loss in a person reading from the left to the right. Many of the right hemianopsias read more easily after a time but most of them develop an addition to the field to the right and usually in the upper quadrant alone, producing a field suggesting a quadrantial loss. (See Illus. No. 12B.)

This addition to the field in such a desirable position must be a factor in making reading easier. Ease in reading does not depend entirely upon the field increase, for there are some who seem to have much disturbance on the mental side of the act. Word blindness usually disturbs the reading, more in some and less in others. This is not to be wondered at, but most of the patients recover from the word blindness at least to such a degree that slowness in reading seems to be the only lasting effect. There are some exceptions to the rule and of the cases seen, one is word blind a year and a half after the attack. To him, printed matter or writing means nothing. He can carry on a conversation and appears normal until he is asked to read. He understands what is read to him and thoroughly enjoys reading a book in that way. He can write a letter either spontaneously or from dictation; provided he continues the task until completed If his attention is diverted, he is lost and cannot tell where he left off. It is a strange thing that this man can laugh and joke, but when asked to read some of his own letters, becomes practically dumb. Of course, he cannot copy. (See Illus. No. 6.) In contrast with this patient, is a lady who seems to have difficulty in getting the word to the speech center. She understands what is said and seems to know what she wants to

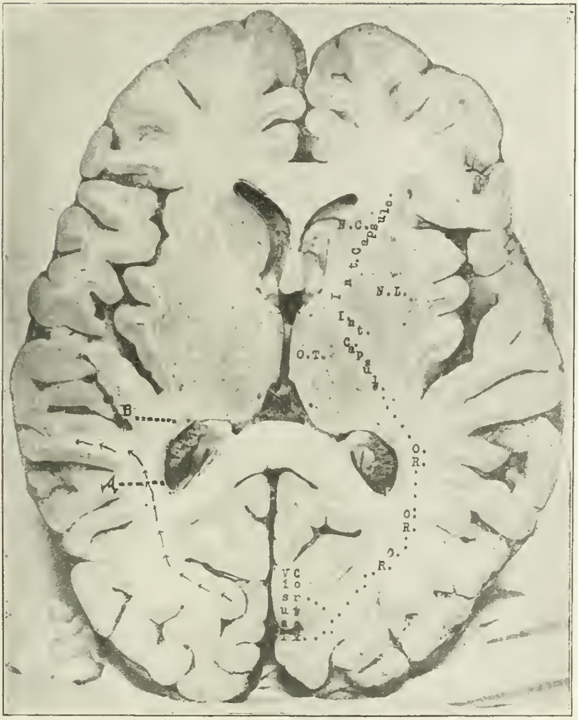


Illustration No. 10. Horizontal Cerebral Section, Showing Optic Radiation and Sites of Lesions.

Horizontal Section of the Cerebrum.

O. T. Optic Thalamus.
I. C. Internal Capsule.
N. C. Nucleus Caudatus.
N. L. Nucleus Lenticularis.
O. R. Optic Radiation or Bundle of Gratiolet.

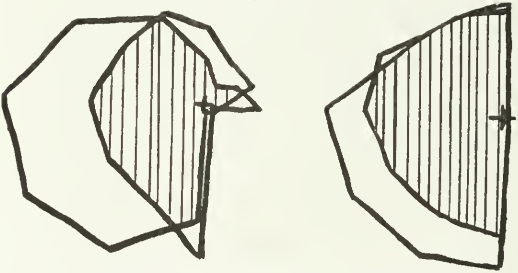
Arrows indicate route of fibres from visual cortex to angular gyrus.

A. Site of lesion producing right homonymous hemianopsia and word blindness.

B. Lesion affects connection of the angular gyrus and speech center, also a hemianopsic result.

say but cannot get the idea transformed into words. Her vocabulary is limited to a few words after more than a year. She seems to know what the letters of the test type are but can only write them (see Illus. No. 9); she cannot speak them. This would seemingly open up the question of the location of the lesions in the two cases. The first patient's retinal halves respond to the pupil tester equally. The seeing half of the retina of each eye of the second patient responds more strongly than the non-seeing half. The lesion in the first case would seem to be located at the point marked "A" on illustration No. 10, which is the classical location, interfering with the optic pathway on that side and the fibres which connect the cuneus with the center for visual memory. Is the lesion of the second case located at "B" on the same illustration? The pupil phenomena would locate the lesion further forward; at which point it would interfere with the fibres running forward from the visual memory center to the speech center; it would interfere with the optic pathway; and it must also affect the ganglia, geniculate bodies or thalamis, else the pupil response would not be unequal.

Illustration No. 11.

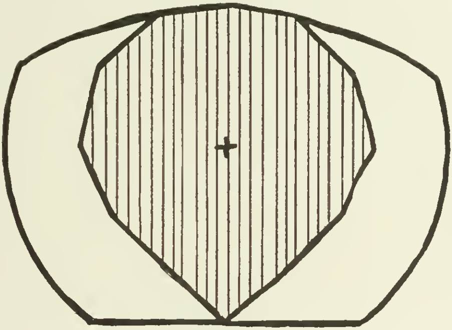


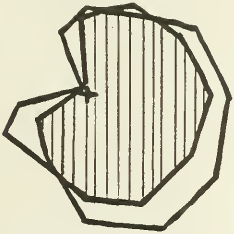
Two cases of R. Hom. Hemianopsia showing reduction of reading guide in A interfering with reading. Later expansion of field shown in B.

Difficulty in reading also results from toxaemia and in one case in particular, reading is not difficult as long as the elimination keeps up. Many of these cases tire easily and mental fatigue is a factor in nearly all at some time or other.

Illustration No. 11 will make plain the effects of various field losses upon the binocular field and the reading guide. The two figures of right homonymous hemianopsia and the one figure of left are made by lapping actual records, using the fixing point as the common center and the radii as adjusting points. The comparison with the normal binocular field can also be made.

One patient with right half losses complained of a decided blur to the right when tested in the Bishop Harmon diaphragm test. This test separates the visual fields for each eye and reduces to a minimum the binocular field. As his line of separation passed very close to the fixation point, it may have been that the macular area, which has been said to cover about four letters of average type, was reduced, giving the effect of a paracentral scotoma.


Normal Binocular Field.


L. Hom. Hemianopsia showing reading guide unimpaired.

The narrowing of the field affects the patient seriously if he is compelled to frequent busy streets. One patient at the age of 49, has continued his usual occupation and busy life and at this time, eight years after the attack, is seemingly in excellent condition. For some time he had much trouble, not alone from bumping into others or being bumped into, but he narrowly escaped bodily harm from men who believed he had purposely jammed them out of the way, and on several occasions has been compelled to halt and explain to angry passers-by that he was not at fault when he had, apparently with malice, bowled over women and children, scattering their packages widely. He has learned to avoid much of this trouble now, but his collar points quickly wear holes in his shirt as he bobs his head from side to side rapidly, substituting direct vision for the usually satisfying indirect vision. The other patients are fortunate because they are either females who can easily avoid the annoyances and trials of crowded places and busy lives or men who have retired and adjusted themselves to their limitations. They avoid the test which, I am sure, would be as much of a trial to them as it was to the one courageous soul who has been through it.

It is interesting to note that patients suffering successive attacks of hemianopsia do not always become totally blind. I have had three cases who have had hemianopsia duplex and two were examples of the classical tubular, barrel or telescopic vision. The third case was totally blind. The field of one of the cases could not be taken on the perimeter, although I made the effort to get it. It was most difficult to lead her attention to any point and she seemed unable to hold it long enough to get any reliable record. At some distance from the eye, say 150 feet, she could see a large object, as a horse and wagon, and read the sign on the wagon; indeed she passed many hours entertaining herself in this way. Vision for anything near was not at all satisfying and she begged for a glass which she was sure would correct the defect. The second case had tubular vision and I was able to get the field easily for white but not for colors (illustration No. 2). Later this field increased for white in all but the lower right quadrant but a study of the field for red, taken on the Peter Campimeter, will convince that originally a much greater area than a quadrant was seriously affected (see 12A). If successive attacks in a number of cases leave a small central zone still active, an explanation would be most acceptable. If it happened only occasionally it would pass without inquiry, but as the retention of a small field seems to be the rule and not the exception, the only explanation which seems to meet the known conditions is the claim for a separate center for fibres coming from the macular area.

The location of this center has been claimed for the angular gyrus or thereabouts. The result of this is a separate route for these fibres posterior to the thalamus, which would explain their escape. The claim of bi-lateral representation of the macular area meets with no denial but it seemingly does not explain the escape of the fibres referred to. It is not likely that the last word on this point has been said and it probably will not be said until we have been able to get autopsies more frequently on our private cases and a number of cases of hemianopsia duplex have been serially sectioned and stained. Like others I have tried to get autopsies on these cases but have yet to succeed in a single case. Color anopsias are written about and undoubtedly do occur, but I have never seen one that was originally a color anopsia. It would seem to be a good rule to withhold the diagnosis of color anopsia until the history has been well searched.

After watching cases for a number of years, one for as long as eleven years, I have been convinced that wonderful changes may take place in the fields for white but to a much less degree for colors. Sometimes the change is slow and occasionally rapid. Thus, in illustration No. 4, is shown a record of a field for white and another record for white and red taken five months later. In the interim the field for white lost its hemianopic aspect, but the field for red still retains the cast of the specie.

Illustration No. 3 shows another record taken January, 1909. The record of the same case taken very nearly eight years later, shows the field for white for the left only, decidedly increased in size, but the field for red does not share in the process. The moderate expansion of the field to the right in the upper quadrant mentioned previously can be seen in several records. This last change tends to make us think the original lesion was only a quadrant which has increased at the expense of the adjoining quadrant but as a matter of fact, the original loss was a half which has improved and decreased in size.

The changes which took place in the case longest under observation are shown in illustration No. 7. The tendency toward atrophy of the nerve is evident but is not to be wondered at if we consider the fact that the cause of these lesions is usually a vascular process which is progressive.

The most wonderful change has taken place in the case whose records are shown in illustration No. 12. His history of two attacks, the original producing a right half loss, is mentioned earlier in the article in connection with the effects of left and right cerebral lesions and also in connection with hemianopsia duplex.

On the perimeter, the line of demarcation may seem to run very close to the fixation point but the Peter Campimeter may show, as it has for me, that the line really runs several degrees away. (See No. 12A.)

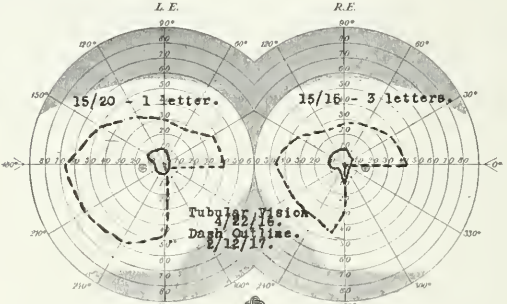
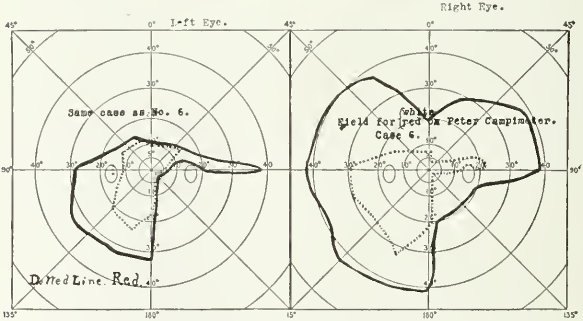


Illustration No. 12. Changes in a Case of Hem. Duplex in One Year.



No. 12A. Record of Hem. Duplex taken on Peter Campimeter.

Illustration No. 12A shows the field of this case for red and white taken on the Peter Campimeter, an instrument which is of greatest value as long as the fixation point is intact.

The field for white varies somewhat from the result taken on the perimeter, which is always the case, and the illustrations are placed close together to permit this comparison. At first glance, one would say that illustration 12A depicts a case of quadrant defect, but closer inspection of the field for red will show the original effects of the lesion seriously affecting three of the four quadrants and the fourth to a lesser degree. The improvement recorded took place during the course of a year. In connection with the discussion of the form of the fields in hemianopsia, it might be mentioned that glaucoma simplex may give a field very suggestive of horizontal half losses . (Illustration No. 13.)

At first glance, the fact that homonymous halves of the fields of vision of each eye are controlled by the same side of the brain does not seem in harmony with the general scheme of contra-laterality, which applies to the rest of the body. One would think that the right eye should be controlled by the left side of the brain and so on. The eye is a compound lens system and the image of the object viewed is reversed. It follows then that the right half of each eye receives impressions from the left. The left side of the body furnishes protection on that side and, as there must be harmony between impressions and motor results, it is not strange to find the right half of each eye controlled by the same side of the brain which controls the muscles acting in the domain of those right halves. Furthermore, in keeping with this harmony of action is the cerebral control of the eye muscles which move the eyes. The adductors of the right eye and the abductors of the left eye are controlled by the right side of the brain. Thus the bringing of the eyes to the left where the right half of each retina can observe the action of the left side of the body for the greater part, are efforts controlled in most part by the same side of the brain. This then is real harmony after all. Associated with the characteristic loss of half fields, lesions near the thalami or posterior thereto may have other symptoms which are a great aid in locating the

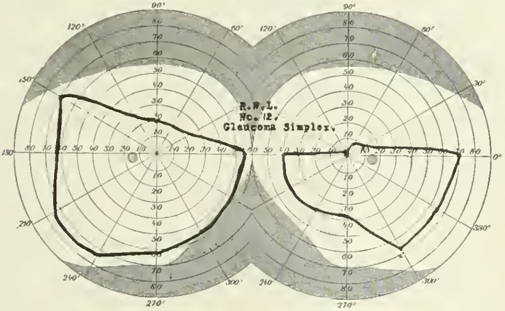


Illustration No. 13. Record of Glaucoma Simplex Resembling Hor. Hemianopsia.

lesion. These are more often found on the left side of the brain than on the right and the most common seems to be word blindness. In fourteen cases with hemianopsia due to lesions located as above mentioned, three having successive attacks, making seventeen cases, ten were located on the left side of the brain. Mind or word blindness was positively present in seven; it was certainly absent in one case and in the other two cases there is doubt because the patients emerged from coma and the attending physicians did not look into this particular point. These two cases had speech difficulty but no effort was made to determine just the type. None of the seven right-sided lesions had this symptom. A glance at illustration No. 10 will show how plain the fibres carrying visual impressions from the thalami to the cuneus are to be seen on cross section and also the connection between the angular gyrus, or center of visual memory and the optic pathway. The classical location for lesions producing word blindness has already been suggested as located at "A" on the illustration. It seems that the angular gyrus on the right side is not as active as the one on the left, else it would not seem possible for seven cases to have no symptom of the kind.

If the lesion be further forward, damage may be done to the internal capsule. The posterior portion of the capsule is sensory, chiefly, and the motor part is well to the front. We would think that sensory symptoms would then be prominent, as they are nearer to the scene of trouble. This does not seem to be the case. The hemi-paralysis in a few of the cases has been both sensory and motor. Motor paralysis has been mentioned in others but I doubt whether effort was made to differentiate. Eight of the left-sided lesions have had hemiplegia and only one of the right-sided lesions. All have recovered the use of limbs but exaggerated knee jerks usually remain. In one case, Babinski is noted a couple of years later on the side first affected. One patient complains of numbness and tingling at times in the right hand with periods of aggravation. This same patient has marked speech difficulty because, although she seems to understand what is said to her, she seems unable to get the word into action. If she is shown a figure, say the number 4, she will count audibly but softly in German, her native tongue, "*ein, zwei, drei, vier,*" and then, in a louder tone, she will say "four." In order to test her vision, she is given a piece of papei and a pencil. A letter is pointed out and she will print the letter.

The optic thalamus is the great sensory relay station and motor for emotions. It would seem that some of these lesions must affect the thalami as well as the capsule. Symptoms generally accepted as thalamus symptoms are post-hemiplegic chorea and loss of mimetic movements of the face. The numbness and tingling mentioned above may belong to the thalamus effects of the sensory portion of the capsule. Emotionalism seems also to result from disturbance of this ganglion. One patient who has had a right-sided cerebral lesion located posterior to the thalamus or thereabouts with equal pupillary response on each side of each retina, has been affected in a peculiar manner. Since his attack he is very much frightened during a thunderstorm and at times will cry with fear. He seeks a dark place in the house and remains there until the storm is over. This is indeed foreign to his nature, as he has always been of a most positive and aggressive character. Another patient was transformed into a timorous whining creature who could see the beginning of a serious disease in every belching of gas or other slight symptom. None of the cases has had the post-hemiplegic chorea spoken of and none has lost the mimetic ability. One patient has had convulsions once or twice a year for the past decade. She can tell when they are coming and retires to bed. This is usually considered as a manifestation of cortical irritation and may well be in her case, as she probably had an extensive lesion. While it is true that those cases having lesions located on the right side of the brain have not been as sick as those having the lesion on the left side of the brain, one well acquainted with these patients could easily see that there had been a change in the individual in every case. Lack of initiative seems to best express the situation. In some cases, the attack is but the beginning of the general change and six have not lived long afterward.

Claim has been made that if the lesion is cortical, the patient will be unaware of the loss, but if the lesion is anterior to the cortex, the patient will be cognizant of the loss because of knowledge of a dark area. I have not been able to confirm this in any case.

We have been occupied up to the present with hemianopsia due to lesions located posterior to the thalamus or thereabouts.

The locating of lesions brings to our attention the Wernicke pupillary test. This is based on sound anatomic grounds and if properly applied is of great use. The first or sensory half of the pupil control arc travels in the optic nerve up to the basal ganglia, geniculate bodies and thalami. It takes its own route from this point to reach the center of pupil control of the third nerve. The return or motor portion of the arc is by way of the third nerve to the pupil. If the lesion is located posterior to the point of separation of the visual and pupil control fibres, the blind half of the eye will still respond to light as shown by pupil response, quite as well as the seeing portion because no portion of the pupil arc has been touched. If the lesion is anterior to the ganglia, the sensory half of the arc is also affected and the blind half of the retina does not respond to light as well as the seeing half of the retina.

There are several ways of making the test. The most common is to throw light on a half of the retina or a part of each half by the ophthalmoscopic mirror, and then on the other half; changes in the pupil being watched for.

The mass of light used in this way is too large to control with exactness and the method does not please the discriminating.

You are never sure the light is confined to the part of the retina desired. Another way is to use the various pupillometers, which throw a sharply limited beam or pencil of light. They are theoretically perfect but practically of little use. Most of the cases seen by the oculist are of apoplectic origin and the most constant feature is sluggish reaction to light. The amount of light thrown by the pupillometer is insufficient to make an impression on the retina except at the macula, which is, of course, too small an area to carry out this test upon. In cases with lesions anterior to the thalami, this dulled acuteness is not so prominent and it is indeed striking in this type of case to note the contrast in the response of the pupil to light thrown on the two sides of the retina.

Feeling that something was needed to make this test what it should be and realizing that most of the oculist's cases would be the sluggish type and therefore he would have the most delicate testing to do, it occurred to me that Behr's idea should be used.*

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*Since this was written, my attention has been called to an article in the "Archives of Ophthalmology," Vol. 42, wherein Hess is given credit for the idea of lateral illumination. But in the "Nederlandsch Tidjschrifteer Geneeskunde" Behr is given credit, and it seems an instrument was made by him, for it is pictured in the journal mentioned for April, 1914.

In a condensed report of a paper published abroad, it was noted that Behr had suggested the use of laterally placed lights.

Mr. Hollister, of the Hardy Company, assisted and made it possible to have my plans carried out. The illustration, No. 14, shows the result. One of the patient's eyes is covered and the head turned so the bridge of the nose will not shield the eye from the lamp on the side of the covered eye. The eye is fixed upon the test object or some more distant object. The lights are placed laterally so the eye is equally illuminated by each lamp, from the side. The switch is a special affair which turns one light on and the other off by one and the same motion. Any difference in sensibility of the two halves of the retina is at once apparent in a change of the size of the pupil. By using another collar, one lamp may be placed high and the other low and the horizontal halves of the retina tested. The consensual

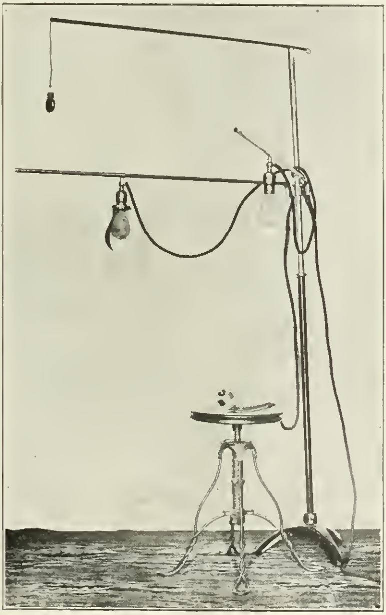

Illustration No. 14. Pupil Tester.

reflex may be rapidly and easily tested by turning one lamp far to the side and out of use. The patient places the open hand vertically before the nose with the forefinger in contact therewith, to screen the eye to be observed from the rays of light which are to be thrown on the unobserved eye. By turning the switch, light is alternately thrown on and off one eye and effect noted on the size of the pupil of the other eye. The eye in shadow can be observed with ease and exactness.

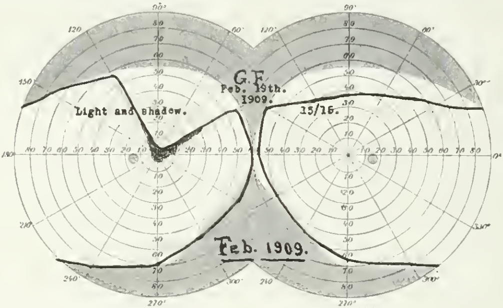

Illustration No. 15. Lesion Close to Chiasm.

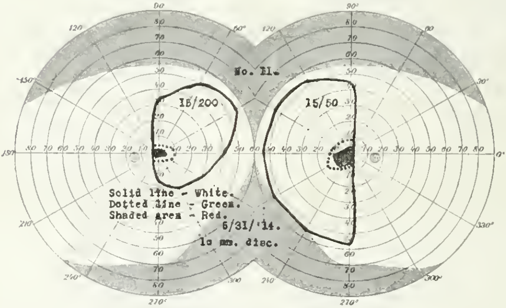

Illustration No. 16. "Bi-Temporal" Hemianopsia with Color Inversion; Pituitary Disease.

I have once or twice dilated one eye of a hemiope and used the mirror to throw light through the large pupil upon the separate halves of the retina, watching the effect on the other pupil, but the most satisfactory results have been obtained by the pupil tester. I have used it on several cases, all of which have been tested by the other methods mentioned. One case in particular proved its value. This case gave equal response by the usual tests but the pupil tester demonstrated beyond doubt that the blind half was much more sluggish than the seeing half. This is the case with the numbness and tingling in the right hand and the pupil tester would suggest that the lesion is probably far enough forward to affect some of the ganglia.

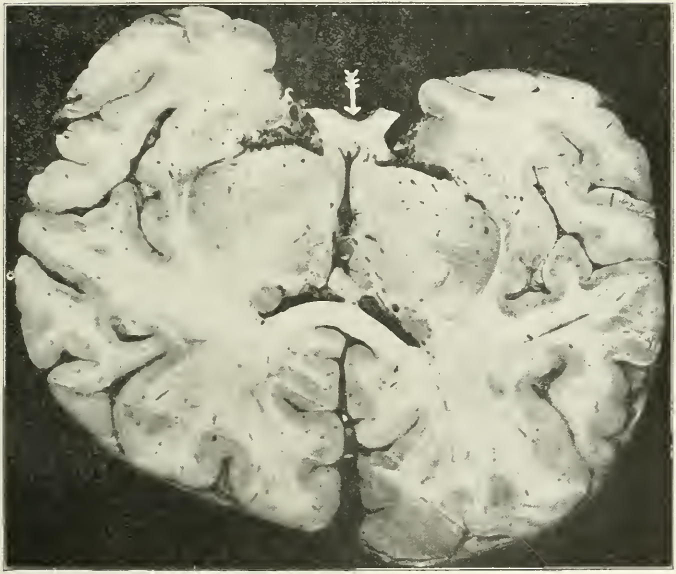

Illustration No. 17. Showing Relation of Third Ventricle to Optic Chiasm. Horizontal Hemianopsia.

In cases which show no pupil response to the blind side, lesion located anterior to the ganglia, in other words; Henschen's researches into the arrangement of the various bundles of nerve fibres in the optic tract, chiasm and nerve, will be of great service. Especially is this true of the tract and chiasm. Any departure from the usual will be a clue to the location of the lesion.

Anterior to the chiasm the changes in the relations of the various bundles at different points are not so marked or characteristic and therefore we cannot get as valuable suggestions.

Tract lesions, as mentioned before, are homonymous; chiasmal are as a rule but there are exceptions. Lesions anterior to the chiasm affect, of course, one eye unless they spread backward. A lesion affecting one eye and later the second eye suggests at once a location close to the chiasm and spreading to it. (Illustration No. 15.)

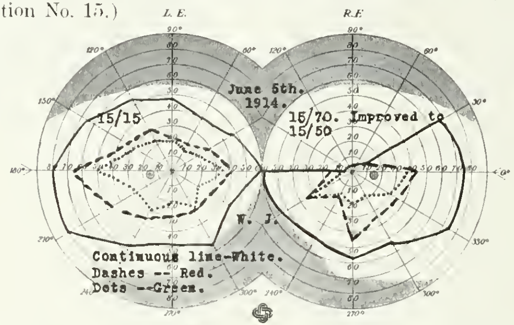

Illustration No. 18. Monocular Hemianopsia.

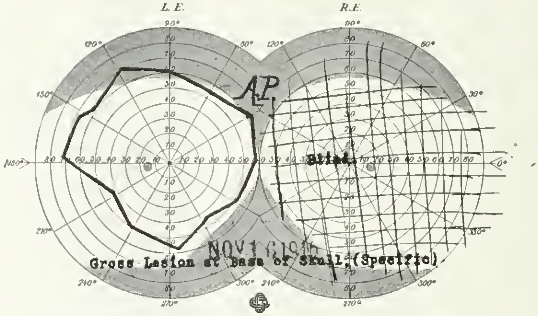

Illustration No. 19. Gross Lesion at Base of Skull. One Blind Eye, Field of Second Affected.

The rare but characteristic lesion producing pressure upon the crossing of the fibres in the chiasm is usually attributed to pituitary disease. Inversion of the color fields may be present. (Illustration No. 16.) The gland is located behind and below the commissure and undoubtedly does produce the result mentioned, but a glance at illustration No. 17 will show that the same result may come from pressure from the third ventricle due to fluid accumulation or tumor. The close association of the ventricle and chiasm can be readily noted.

Almost every conceivable lesion of the chiasm has been studied and autopsied and there seems to be but one missing from Willbrand's list of possibilities which have been exemplified. From homonymous quadrants up to one totally blind eye and three quadrants in the other and finally complete blindness have been discussed by him. Lesions of the optic nerve producing sectorial defects are not so common. Monocular hemianopsia may be of the horizontal type and the blind half does not respond to light. (Illustration No. 18.)

At this point it would seem wise to discuss the effects of gross lesions at the base of the skull upon the optic nerve and pupil. These cases are usually specific but one author has stated that they may be the result of a rheumatic diathesis. When we have a single blind eye, we should get the perimetric field of the other. If we find it involved, we have the familiar formula of one field affected and spreading to the other, which means a lesion near the chiasm and spreading to it. (Illustration No. 19.)

These gross lesions usually affect the third nerve first and only a part in the beginning of the process. Later, the whole nerve and the fourth and sixth, two and sometimes three portions of the fifth and later the optic may become involved. Eventually the eye may become blind and the odd thing is the fact that with the eye blind, the pupil will not be large as we expect in a blind eye unless the good eye is covered. It is claimed that the pupil and upper lid fibres of the third nerve are located near the center of the nerve and the last to become affected and the first to recover. After a time, the lid recovers and the pupil also, but it is rare for the full muscular control to return. The optic nerve may finally atrophy. With this state of affairs it is interesting to note the blind eye pupil dilate when the good eye is covered. The explanation advanced is that with recovery of the third nerve pupil fibres, consensual reflex is re-established. The light thrown into the good eye affects the pupil center which in turn controls the pupils of both eyes; a one-sided impulse but bilateral effect. As long as light enters the good eye, the pupil of the blind eye is contracted, but as soon as the good eye is covered, there is no way for the light waves to affect the pupil center because the optic nerve of the only eye exposed to light now cannot carry the impulse.

# ACUTE PNEUMOCOCCUS CONJUNCTIVITIS WITH COMPLICATIONS AND FATAL TERMINATION FROM MENINGITIS.

BY
ROBERT R. BROWNFIELD, M. D.
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Mexican boy, aged twelve years, well nourished, ordinary diseases of childhood.

Employee of Southwest Cotton Company; had worked in cotton field until June 2nd.

When first seen by Dr. Jordan, company physician, June 3rd, left eye inflamed and lid swollen; very painful. Boric acid irrigations and argyrol, 10%, every two hours, prescribed. Under this treatment condition became rapidly worse; right eye affected on second day; patient referred to writer on third day, June 5th.

Admitted to St. Joseph's Hospital evening of June 5th; temperature 102.6 axilla; pulse 122, mildly delirious, but could be roused.

Examination at this time showed the following conditions: Lids of both eyes so badly swollen that it was impossible to see condition of cornea. Conjunctiva, both palpebral and bulbar, coated with white fibrinous exudate; very little pus; cervical glands considerably enlarged and tender, left side most pronounced. Ear, nose and throat negative. Klebs-Loeffler conjunctivitis suspected and cultures taken from both eyes, and from throat, although throat showed no signs of inflammation. Smear from eyes showed diplo-bacilli and pneumococci. Cultures at eight hours were negative for diphtheria. Cultures twenty-four hours' incubation showed almost pure pneumococci.

Eyes irrigated with boric acid every two hours, followed by the instillation of 5% solution ethyl-hydro-cuprein; eyes kept covered by hot boric acid compresses.

Differential blood count as follows:

| | | | |
|---|---|---|---|
| Hemoglobin ......... | 85% | | |
| Red blood cells ....... | 4,800,000 | | |
| White blood cells...... | 12,800 | | |
| Polymorphonuclear ....... | | 76% | |
| Small mononuclear........ | | 16% | |
| Large mononuclear........ | | 5% | |
| Eosinophile .............. | | 0% | |
| Transitional ............. | | 3% | |
| Basophile ............... | | 0% | 100% |

**General physical examination** by Dr. Kimball Bannister revealed chest negative, abdomen negative, and peripheral reflexes normal.

I call attention to the normal reflexes at this time because of some stiffness of the neck, which caused a suspicion of meningitis, but was probably due to the cervical glands.

**June 9th:** Patient showed no improvement, temperature running 101 to 103.6. Ice packs substituted for hot packs on eyes. Packs of one-half of 1% phenol to neck for increasing soreness and swelling of glands. For three days condition slightly improved, temperature generally lower, patient more rational, eyelids much less swollen. Could now examine corneæ and found them partially covered by same fibrinous exudate, which lined the conjunctival sac.

**June 12th:** Sensitized Pneumococcic Vaccine, one hundred million, given intramuscularly. Condition remained practically unchanged. Temperature slightly increased.

**June 14th:** Patient complained of sore throat; on examination found acute pharyngitis with some swelling of the tonsils. Cervical adenitis increased and patient complained of great pain on swallowing or being moved. Temperature increased to 104.3. Ten per cent solution ethyl-hydro-cuprein used as swab to pharynx every two hours.

**Blood count** at this time showed:

| | | | |
|---|---|---|---|
| Hemoglobin | 80% | | |
| Red blood cells | 4,400,000 | | |
| White blood cells | 13,200 | | |
| Polymorphonuclear | | 95% | |
| Small mononuclear | | 10% | |
| Large mononuclear | | 4% | |
| Transitional | | 1% | 100% |

Vaccine was again administered intramuscularly, the dose being five hundred million.

Condition showed some improvement for several days; eyes became less swollen, less exudate; cornea clearer; patient could see to recognize visitors at close range; throat only slightly inflamed; glands less swollen, but still temperature remained high —103 to 104.4.

**June 17th:** Vaccine given, one billion intramuscularly. Condition continued about the same, eyes showing gradual improvement. Patient was conscious all day, but muttered intermittently at night; could always be roused.

None of the injections of vaccine produced marked reaction either local or febrile.

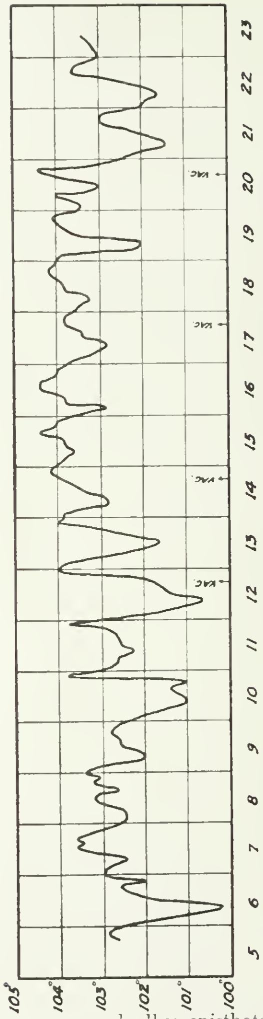
Note temperature chart June 18th, day following the large dose of vaccine. Average increase of temperature over previous day only about .3.

**June 18th-19th.:** Eyes steadily improving, throat practically normal; cervical glands much reduced; temperature remained high.

**June 20th:** Patient delirious; neck, arms and legs spastic; head retracted; moderate opisthotonos; hyperesthesia of erector spinæ group of muscles.

Bilateral Babinski, exaggerated knee jerks and Achilles; positive Kernig. Spinal puncture made, 20 cc. fluid withdrawn under slightly increased pressure; very slightly cloudy. Cell count six hundred and fifty per cmm.; seventy per cent mononuclear; thirty per cent polynuclear. Nonne, Ross-Jones and Noguchi globulin tests all strongly positive. Centrifugalized sediment stained for micro-organisms and none found.

Vaccine given intravenously, dose one billion.



Temperature Chart Showing Effect of Vaccine.

Patient continued to grow worse gradually; opisthotonos increased and constant spastic movements of the arms.

No further spinal puncture made, as it was considered unnecessary from diagnostic standpoint, case was so typically that of meningitis. Morning of June 23rd, patient expired. Permission for autopsy denied by parents.

# THE HABITUAL USE OF SPECTACLES. AN INSURANCE AGAINST TRAUMATISM RATHER THAN A RISK.

BY
H. GIFFORD, M. D.
OMAHA, NEBRASKA.

The number of articles on injuries to the eye from broken spectacles which have appeared in the last few years is an indication that such injuries are more common than formerly. This is probably due partly to the increasing use of spectacles, and partly, as Vreeland (Oph. Record, June, 1916) suggests, to the use of the rimless form. All authors agree, however, that on the whole, such accidents are very rare. The point which I want to make is that the public ought to be impressed with the fact that while an infinitesimal risk of injury from broken glasses cannot be denied, the risk of such an injury is not to be compared with the extra safety against various sorts of injuries which glasses confer. During thirty-three years of ophthalmic practice I have seen five cases in which an eye has been injured by a broken spectacle glass. In two of them the cornea was cut slightly; in two others the cornea was cut seriously and perforated, while in the fifth the patient stooped over in a dark place and struck his glasses on the upright handle of an agricultural implement, driving a piece under the upper lid, cutting the superior rectus and shoving it back so that I could not find it. Two of these patients recovered with good sight; in two, the final sight was useful, though seriously impaired, while in the last case the sight was good but some diplopia remained. In none of these was the eye lost and in at least two of them it is probable that if glasses had not been worn a worse injury would have occurred.

Opposed to this is the fact that in the same length of time I have seen, at a mild estimate, 2,300 cases of serious traumatic injury to the eye, at least ninety per cent of which would probably not have occurred if glasses had been habitually worn. The great majority of these accidents, in my practice, have not occurred in employments in which the workers are commonly urged to wear protective glasses, but have been in the nature of household or agricultural injuries, in which it was no fault of the patient's that they were not wearing glasses. While I occasionally have a case of steel in the interior of the eye of an industrial worker, I have two or three times as many such cases among farmers who injure their eyes while repairing agricultural machinery; or among ordinary civilians who attempt such operations as opening a box with a hatchet and hammer. Practically all of these injuries would have been prevented by ordinary spectacles. The same applies to the numerous accidents from hedge thorns, springing branches, flying chips of wood, scratches by cornstalks or corn blades. The great majority of gunpowder and Fourth of July accidents would not injure the eye if glasses were worn. I am quite certain that my spectacles have saved me from at least three serious injuries from twigs while in the woods, and on one occasion, while playing the fool with a powder can I caused an explosion which would, undoubtedly, have seriously injured the sight of both myself and my son if we had not been blessed with a high degree of hyperopic astigmatism which necessitated our wearing glasses.

These considerations have led me into the habit of consoling patients who need glasses but who object to wearing them, by the reflection that they are much less likely to put their eyes out than they otherwise would be. Furthermore, after having seen an occasional case in which a man with only one eye has lost it by an accident which ordinary spectacles would certainly have prevented I, many years ago, reached the conclusion that individuals with only one good eye never ought to go without spectacles, and have made it a point to pound this conclusion into the mind of every such patient with whom I come in contact. This argument applies not only to persons who are blind in one eye, but to the much larger number who have two seeing eyes, but only one which is good enough for ordinary pursuits. Consequently, I make the same recommendation to all patients with one eye which is amblyopic or which, from accident or disease, has lost much of its sight. It follows that in recommending the habitual use of glasses purely for protection of the only good eye, we should advise good sized spectacles with strong rims, thus affording better protection and at the same time avoiding the slight extra risk from broken glasses which rimless spectacles involve. It is true that many adults refuse to take my advice, but this shifts the responsibility to their own shoulders; and where I make such recommendation for children, the great majority of parents follow my directions, since they do not feel like taking the risk for their children which they might feel inclined to do for themselves.

The protection which spectacles afford is so much greater than the risk which they involve, that every person with only one good eye should habitually wear them.

The main points of this paper were first elaborated in the A. M. A. Bulletin No. 2 on Conservation of Vision, published in 1914, but as this seems to have reached comparatively few of the profession, I have thought it worth while to republish them in an eye journal.

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The following written examination was given by the American Board for Ophthalmic Examinations, in New York, last June:

1. *Anatomy.*

(a) From what blastodermic membrane is the crystalline lens developed: describe the structure of the lens.

(b) Describe the anatomy of the optic nerve.

2. *Physiology.*

(a) Describe the action of the oblique muscles.

(b) In a man with 8D of accommodation where exactly are the far point and the near point if the man is:

(1) Emmetropic.

(2) Hyperopic 2D.

(3) Myopic 2D.

3. *Clinical.*

(a) Discuss the detection of simulated blindness in one eye. (Not over three hundred words.)

(b) Discuss the operative treatment of glaucoma. (Not over three hundred words.)

(c) Discuss the possible locations of a lesion that might cause a loss of vision in the upper nasal quadrant of the right eye.

In addition to the written examination, case reports were required, and a careful clinical examination was given in every branch of opthalmology.

The next meeting of the board will be at Pittsburgh, October 30, 1917.

# REPORTS OF SOCIETIES

## PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

January 18, 1917.

S. LEWIS ZIEGLER, M. D., CHAIRMAN.

### Unusual Type of Familial Retinal Degeneration.

Dr. William Zentmayer exhibited a patient with an unusual type of familial retinal degeneration. The patient was a boy, aged nine years, whose sister, aged ten years, had been exhibited at a previous meeting. Scattered throughout the retina, but especially grouped about the macula and along the course of the superior and inferior temporal arteries, were white or yellowish-white disciform lesions, mostly discrete but in places confluent, varying in size from twice to four times the diameter of the main trunk of the central artery of the retina. In the R. E. the lesions in the foveal region were somewhat pigmented. The temporal halves of the nerves were atrophic. The child is healthy, well developed, and mentally sound. The Wassermann was negative, whereas in the sister there was a positive reaction. Otherwise the cases were entirely alike.

### Conjunctivokeratoplasty.

Dr. William Zentmayer said that from his observations he was convinced that this method of repair did not receive the attention that the results attained by it deserved. He had found it of value in recent wounds of the cornea, in prolapse of the iris following perforating ulcers, in fistula of the cornea, and in recent staphyloma.

He exhibited a woman with a corneal fistula which had been repaired in this way. Nine months before, the eye had been injured by being scratched by a baby's finger-nail. She had been treated in another service and was first seen by Dr. Zentmayer two months ago. Operation was at once advised, but was not consented to until two weeks ago. The fistula was situated midway between the center and the lower border of the cornea in the vertical meridian. The eyeball was mushy and gave considerable annoyance. A keratome was introduced at the lower margin of the cornea, and before withdrawing it to do the iridectomy it was used as a support upon which to curette the fistulous tract and the surrounding margins. An iridectomy was then made. A conjunctival flap attached to both ends was then drawn up from below the cornea, so that the fistula was in its middle. It was pressed down into the hole, and two sutures were placed at the sclerocorneal margin above and below to hold the flap. The T. of the eye is now normal, the anterior chamber restored, and the eye quiet and painless. There was a cataract which could be removed later. The technic pursued is the same as that introduced by Kuhnt and recently described by Knapp, except for the use of the keratome for support in curetting the fistula and the taking of the flap from below rather than on the side of the cornea. The latter method would seem, however, to be preferable.

The second case was one of prolapse of the iris following perforation of the cornea complicating purulent conjunctivitis. There was no longer any discharge, but the ulcer was still progressive. The prolapse was the size of a small white bean. The prolapsed iris was abscised and a conjunctival flap after the manner of the v. Lint cataract flap was made. It slowly slipped down and a small portion of the ulcer was exposed before healing had fully occurred. This has since closed and the anterior chamber has been reëstablished.

Dr. S. Lewis Ziegler stated that several years ago he had seen a case of fistula of the cornea in a patient from a blind asylum, which he had successfully treated by transplantation of corneal tissue. He said that this method was much used by Magitot, of Paris.

### An Unusual Form of Superficial Corneal Opacity, Probably an Instance of Atypical Epithelial Dystrophy.

William Campbell Posey reported a case in which the opacity affected the upper and outer corneal quadrant and appeared in the eye of a healthy young married woman some time after what appeared to be an ordinary attack of acute conjunctivitis. At first consisting of but a faint stippling of the corneal epithelium, there developed later a dense glistening-white opacity in the affected area that was arch-like in form and superficially vascular. This haze traveled slowly across the cornea, the advance being made by the steady progression of the fine area of stippling just referred to. Dr. Posey explained the condition as being of corneal dystrophy, probably secondary to the conjunctivitis, the most marked changes residing in the epithelium, the dense white area representing the hyaline product of the changed epithelial and subepithelial elements. The patient had been irregular in attendance, and treatment had been applied very interruptedly, but massage with yellow oxide salves, and dionin, with applications of holocain and heat had gradually caused a subsidence in the progress of the opacity, the vessels gradually disappearing and the base of the mass growing more transparent. Dr. Posey referred to two similar cases seen by Bordley, in both of which there was a history of trauma through closed lids.

### Bilateral Congenital Cataracts.

Dr. T. B. Holloway exhibited a patient, aged forty-five years, who had been referred to his service at the Polyclinic Hospital by Dr. Ealer. In each lens, situated in the posterior cortical layers, there was a triangular opacity with its base down, the width of the base being about 3 mm. as seen with a +7.00 lens. It was made up of innumerable closely packed dots, some discrete, others confluent. With oblique illumination the opacity could be seen to conform to the natural curvature of the posterior portion of the lens. About the lens in the anterior cortical layers could be observed a few scattered and discrete punctate opacities. The patient had had seven pregnancies, the last five resulting either in the early death of the infant or in miscarriage. A serum Wassermann test was negative. No known similar conditions were in the patient's immediate family.

Dr. Holloway referred briefly to some of the various types of congenital cataract. especially to the patient shown before this Section several years ago by Dr. Crampton. It was recalled that in that instance the triangular opacity was centrally located in a disk and that the apex was down.

### Ring-Shaped Opacity in the Posterior Portion of the Lens.

After briefly referring to the ring-shaped opacity as described by Vossius, Dr. T. B. Holloway referred to a patient whose history had been recently reported by Magruder, in whom there had been observed, after trauma, an opacity in the posterior portion of the lens. He then referred to the following three patients, in none of which was there a history of trauma:

#### Case 1.

S. B., aged twenty-two years, first came to Dr. de Schweinitz's service at the University Hospital in May, 1906, with specific postneuritic atrophy. In October, 1915, he was referred from the hospital to the clinic for examination, at which time there was noted in the posterior portion of each lens a very delicate ring-shaped opacity made up of punctate dots, and which measured about 4 mm. in diameter. As a result of his pronounced atrophy the vision of the right eye was 2/150 and of the left 6/150. Chancre was admitted at the age of eighteen years. In the past he had used alcohol to excess. There was a general adenopathy, moderate pyorrhea, soft systolic murmur, systolic blood-pressure 128, diastolic 80. Urine and serum Wassermann were negative.

**Case 2.**

H. T., aged sixty years. First seen in Dr. Francis Sinkler's clinic at the Orthopædic Hospital and Infirmary for Nervous Diseases. There was a past history of partial hemiplegia. The existing symptoms warranted a diagnosis of cerebrospinal syphilis. The pupils were slightly irregular in contour, with distinct tendency to miosis, but there still remained the faintest light reflex with condensed light. The pupils became pin-point in accommodation and convergence. The disks were somewhat dirty in appearance, but with a suitable correction the vision was normal. In the posterior portion of each lens there was a very delicate ring-shaped opacity made up of pin-point dots, with a few scattered tiny opacities toward the periphery. A serum Wassermann was negative, but a spinal fluid Wassermann was positive.

**Case 3.**

Mrs. H. W., aged forty-one years. First came to the University Hospital, owing to asthenopia, in October, 1915. The patient showed a moderate amount of anemia and had a nephritis. Scattered through the anterior stromal layers could be noted some fine lens dust and a few dots, some of which, by oblique illumination, presented a delicate blue tint similar to the appearance seen in some cases of congenital punctate cataract. In the cortical layers, posterior to the nucleus, there was a vague circle of punctate dots 3 or 4 mm. in diameter, analogous in appearance to that seen following concussion of the globe. The right disk showed a suspicious pallor. In the left eye there were several small vague foci of retinochoroidal disturbance between the macula and disk. Unfortunately her medical data had been mislaid.

Dr. Holloway called attention to the fact that the lesions shown in these three non-traumatic cases could not be differentiated from the so-called Vossius ring-shaped opacity except from its location, which he believed to be in the lens between the nucleus and the capsule, but not capsular. He was not certain as to whether they were congenital or acquired, but from the fact that all of them had serious constitutional conditions, and two of them had delicate lens changes, he believed the evidence would point toward the latter.

Dr. Harold G. Goldberg reported a case of pulsating exophthalmos with the following history: In March, 1916, the patient was struck in the left temporal region with a heavy steel bar. A few days later left external ophthalmoplegia developed, which condition had persisted with very little change until the present time. One month after the receipt of the injury a throbbing sensation was felt over the opposite temple which grew steadily worse until five months later the deep scleral vessels of the right eye, especially those on the temporal side, became infected, the conjunctiva edematous, and the eyeball became somewhat proptosed. With a stethoscope a loud swishing bruit, synchronous with systole, was heard over the temporal bone on the right side and not transmitted beyond an area more than 10 to 12 centimeters in extent. The treatment consisted of pressure bandaging and the liberal use of mercurials and iodides, but very little, if any, improvement had been noted.

### Recurrent Neuro-Epithelioma.

(Original Article Ophthalmic Record, Sept., 1917.)

Dr. G. Oram Ring exhibited a child, aged eight years, showing the result of the removal of an extensive recurrent neuro-epithelioma from the orbit by the electrothermic method. The case is believed to have been the first so treated.

J. Milton Griscom, M. D., Clerk.

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## CHICAGO OPHTHALMOLOGICAL SOCIETY.

DR. FRANCIS LANE, PRESIDING.

May 21st, 1917.

### Report of Four Cases of Ocular Tuberculosis Treated by Tuberculin.

Dr. Thomas Faith said that these cases were selected from amongst a number of cases of tuberculosis of the eye which had come under his care in the past ten years, and have been chosen because of the fact that in addition to the general interest attached to such cases, each case teaches a lesson which should be remembered if we are to manage the treatment of this affection to the best advantage.

One was a case of sclero-keratitis, two of choroiditis, and one of optic neuritis or neuro-retinitis.

The report of the following case will serve as an illustration of the other three. Patient, Mrs. A. M., aged 23, housewife, was seen first December 30, 1911. She was of a family of five children, three living, two sisters older than the patient died from some pulmonary trouble. Father living at the age of 66. Mother died when patient was eight years old, cause not known. Two brothers younger than patient are living and in apparently good health. Personal history. Has never been robust. Has had swellings in the neck since a small girl; has suffered from indigestion and intercostal neuralgia much of the time for several weeks; looks pale and is under weight. She had an attack of pain and inflammation in the left eye eight months ago, which was diagnosed iritis, and for which she was treated over a period of five or six weeks. She complains now of pain and inflammation in the right eye, present one week. This condition followed immediately after a severe attack of lumbago and sore throat. There was a typical anterior scleritis present with swelling and tenderness just beyond the upper margin of the cornea. Atropin, dionin and hot applications were ordered locally, and calomel and salicylate of soda internally. A urinalysis at this time was negative. The nose and throat were examined and evidence of the previous attack of tonsillitis could be easily seen. There were several enlarged glands in the posterior cervical region, and the glands of the internal jugular area were also enlarged. There was no venereal history and a negative Wassermann was obtained in the next two days. The pupil dilated well under atropin, but the eye remained painful and tender with only an occasional slight improvement for the two following weeks. A thorough, painstaking physical examination was then made as well as a blood count and nothing of any importance was found. He then determined to remove the tonsils as they were distinctly diseased, and did so on the 16th of January, 1912, using the Tydings snare. He thought at first that he had found the cause of the trouble as there was a distinct improvement for the first weeks after the tonsillectomy; but by the 10th day after the operation the condition was as severe as before. For two weeks following this time, in spite of the negative Wassermann, patient was put upon inunctions of mercury and iodid of sodium and instead of improving continued to grow progressively worse. After doing the tonsillectomy and during the time that the antiluetic treatment was being administered the patient's temperature was kept track of each time that she came to the office and it was observed that the afternoon temperature was usually above normal. From the 12th to the 20th of February patient was kept quiet at home, and the temperature recorded every three hours from waking until bed time. The result of this test was that he found the patient's temperature ranging from 97 to 98°F. in the morning to 99.8 or even 100.2° in the evening. At this time the infiltration had extended well into the cornea and the sclera was thickened, swollen and tender.

On February 20th, 0.5 mg. of O. T. was given and was followed in 18 hours by a sharp general and focal reaction. Temperature went to 101.6°. The eye became more inflamed and painful, and there was some soreness of the glands of the neck. Following this there was a gradual subsidence of the temperature and an improvement in the eye condition. After about 12 days, when the temperature had receded to and remained at the same average as before the test, treatment was begun with Mulford's T. R., No. 1, and this was repeated at three-day intervals, gradually increasing the dose in the usual proportion and watching constantly for evidences of reaction. This came with the fifth dose and he was obliged to rest a week and then increase the interval to five days, and when the dose had been raised to 1-1000 mg. the interval was increased to seven-day periods and was so continued.

There were never any new nodules formed on the sclera after the fifth injection, and the temperature only went above 99° twice after the twelfth treatment. The eye began to clear rapidly after the sixth injection and by the time the tenth was given there was not a trace of active inflammation remaining. This case was given in all 22 injections, and up to September, 1914, had never had a recurrence. Her adenitis disappeared and her general health was improved in every way.

After citing reports in detail of the other three cases, Dr. Faith stated that each of these cases teaches an important and valuable lesson. Case 1 shows that a tubercular process may be engrafted upon or added to some other even acute condition which seems to prepare the tissues for the localization of the tubercular process. Case 2 shows that even in the absence of any definite physical finding in the chest, the diagnostic dose should always be a small one in order to prevent not only local but possibly general disaster to the patient. This case also shows that an injury may be the determining factor in the localization of a tubercular process. All four of these cases teach one not to rely too much upon physical examination of the chest for corroborative evidence in making the diagnosis. Case 4 demonstrates that it is sometimes necessary to make a number of diagnostic tuberculin tests before making up one's mind as to the presence or absence of tuberculosis as the causative factor in the case. Two of the cases likewise show that one should not be tempted to make the injections at too short intervals or to increase the size of the dose too rapidly. It is well to give the smallest possible dose which will produce a result without a reaction.

*DISCUSSION.*

Dr. George F. Suker stated that Case 2 cited by the essayist was a very illustrative case, showing that the diagnostic dose of tuberculin was too large and the end result therefore disastrous. Tuberculin diagnostically used was a double edge sword, and one could, without these large doses of tuberculin, diagnosticate tuberculosis. An X-ray should be taken. One could have lymphatic nodes in the presternal region. One could have a temperature chart, and whether the tuberculosis be local in the eye, or be limited to the lung tissue, the signs and symptoms and the general course of temperature must be and often are alike. It made no difference whether the patient had tuberculosis of the big toe or eye, that patient was bound to run a temperature, and if one took the temperature at regular short intervals he would find it was elevated, hence it was advisable to guard against the use of excessively large doses of tuberculin for diagnostic purposes as they were disastrous to the eye. The smallest possible dose of tuberculin that gives a minimum reaction is more than sufficient to make a diagnosis, and the therapeutic dose should never give any reaction. The therapeutic dose should not be repeated too often in quick succession, long intervals between injections is better. Furthermore, the general regimen of the patient should be properly taken care of. Tuberculosis of the eye should be treated upon the principles underlying the treatment of a tuberculosis of the lung. Tuberculosis of the posterior globe was usually one of chronicity and not of acuteness.

As to tuberculosis of the choroid, it had been the speaker's observation, both personally and from the literature, that such lesions of the choroid should be gingerly handled as regards the injection of tuberculin for therapeutic purposes, rather more so than tuberculosis of the iris or of the ciliary body and processes. All intraocular tubercular lesions are very apt to give some systemic symptoms, if one searched carefully for them.

Dr. Richard J. Tivnen said there was no class of cases that caused the ophthalmologist more distress and taxed his patience more than these tubercular subjects. It required an infinite amount of perseverance and an infinite amount of assurance and stimulus on part of the patient to assure him that he should continue and fight it out. He endorsed the paper because the essayist had outlined a definite procedure for handling these cases and had pointed out the great danger from the use of tuberculin when given in too large doses. Any one who had used tuberculin quickly found out it was one of the most danferous agents at the command of the ophthalmologist, particuarly so from two standpoints: First, to be able to determine precisely the individual dose that is suitable for the particular patient that confronted the practitioner, and second, the problem was how frequently the dose should be administered. Some one had said there was no such thing as dosage and this was particularly true of tuberculin.

Another point the speaker emphasized was this: there was no class of cases where teamwork was more essential than in these cases of ocular tuberculosis—teamwork with the internist and with the nose man, and so on.

These patients should, if possible, be kept under observation in a hospital. They should not be of the ambulatory type. While Dr. Faith had some of his cases under observation for six months, it was difficult to keep patients under observation for that length of time. When one undertook to treat a case of this nature he should follow a definite line of procedure, and if this was done in the handling of these cases, both from the diagnostic and therapeutic side, great good could be accomplished.

Dr. Willis O. Nance stated that the results from the use of tuberculin in his experience had been rather varied. In some cases he had been able to get almost magical results, and in other instances the results had been disappointing.

Since the publication of Verhoeff's monograph several years ago on the etiology of scleritis in which attention was called to the fact that the majority of these cases were due to tuberculosis, the speaker had followed out treatment along these lines in all cases, except where he believed there was some other etiologic factor. He called attention to a case he had under observation at the present time. A woman had had recurrent attacks of scleritis for more than two years, had been treated by a number of ophthalmologists of Chicago, and when she came under his observation last fall he had a tuberculin test made, and a very thorough physical examination made, including the microscopic and clinical examinations. The conclusion was that the patient was suffering from ocular tuberculosis. She responded promptly to the tuberculin test. The Wassermann test was negative. She had had three Wassermanns made at different times. Dr. Nance treated her with tuberculin T. R. and about the 10th or 12th injection she developed a very severe focal reaction. In fact, it alarmed her, she stating that the eye was in a worse condition than it had been during the two years she had been suffering from the disease. There was absolutely no benefit whatever from any of the injections. The result was so alarming that he decided he would allow the patient to rest for a while as far as injections were concerned, and he substituted the iodid of potassium. He began with 30 grains a day and rapidly increased it until it reached about 60 grains, three times a day. The eye began to clear up and the dose was finally increased to 270 grains a day, and very soon the eye was perfectly clear. The amount was then reduced to 150 grains a day, which she is taking at the present time, with a very satisfactory result. This case showed that the Wassermann test was not a positive diagnostic test, neither was the tuberculin test always positive by any means. This patient showed no symptoms whatever of syphilis in any form. The family history was excellent, yet this case of scleritis yielded beautifully to large doses of iodid of potassium.

### Total Symblepharon.

Dr. J. A. Pratt, of Aurora, said that in total symblepharon, as well as in any symblepharon, the aim of the surgeon should be to restore the condition to normal with the least possible operative procedure. To Holt, Wilder, Weeks and Woodruff, we owe the great advance in operating for this condition. The paraffin coated block tin plates, and Weeks' method of restoration of the inferior cul-de-sac by anchorage to the periosteum of the rim of the orbit, has made the transplanting of the Thiersch grafts possible. In previous operations his difficulty was the placing of the grafts, and he presented a method, while possibly not new, he was unable to find it described.

(CONTINUED)

## HEAD SURGERY IN THE ARMY HOSPITALS.

About twenty per cent of the beds in Base Hospitals within the present war zone is employed in the treatment of head injuries, and this in spite of the use of steel helmets instead of the usual head-gear. In view of this fact the Surgeon-General of the United States Army has provided a specially trained personnel with an adequate equipment for every Base Hospital overseas. He has created a special section in surgery of the head, divided into, first ophthalmology; second, otolaryngology; third, brain and, fourth, oral surgery and plastic surgery of the face and head.. This section is under the general direction of Lieut.-Col. T. C. Lyster of the Surgeon-General's office, associated with whom are the following, forming a sub-committee of the General Medical Board of the Council of National Defense: Major Nelson M. Black, ophthalmology; Major H. P. Mosher, otolaryngology; Major V. P. Blair, oral and plastic surgery, and Captain Charles Bagley, Jr.

Through this committee some of our best known specialists throughout the country have been commissioned in the Medical Reserve Corps and assigned to various cantonment and other army hospitals as members of head surgery units. By this combination the various head specialists may materially assist and complement one another; the ophthalmologist, for example, in watching the eye grounds for the brain surgeon and in conferring with the plastic operator in many forms of injuries in and about the orbit.

From the *Journal of the Am. Med. Assn.* we learn that it is planned to have one hospital established in France which shall be devoted entirely to head injuries. To this hospital all such cases are to be evacuated when deemed to be to the best interest of the service and of the wounded soldier. This hospital is to have a capacity of perhaps one thousand beds, and is to be accessible—in reality an adjunct—to the various base hospitals. The institution is to be complete with laboratory Roentgen-ray apparatus, shops and a mechanical division for reconstructive apparatus. It is hoped to follow the steps of the English Army and to furnish the men with spectacles from a standard lens grinding department.

It must not be assumed from the foregoing that special surgeons in Base Hospitals shall confine their activities to their own particular departments. On the contrary it is expected that every surgeon, whatever his rank or particular assignment, will take part in the general work of the hospital. In a letter recently received by the writer from Major Geo. S. Derby, the ophthalmologist attached to (Harvard) Base Hospital No. 5, or No. 11 General Hospital, he says: "Our work is very interesting and I know we are doing something toward the common good, which is a great satisfaction. Of course there is a great deal of routine, and one must help out in all sorts of lines—anaesthesia, minor surgery, dressings, clinical work in times of stress, etc.—but it is all part of the game."

This same idea is put into practice at the cantonment and other army hospitals. Here in Camp Sherman where, as in other base hospitals, all the staff is busily engaged in the examination of conscripts; the surgeons in the eye department examined in one day sixty-five "referred" cases. It was necessary to determine the refraction under a cycloplegic in some half dozen instances and to use the ophthalmoscope in most instances, not to speak of the employment of malingering tests in others. As the writer has just now but one assistant, albeit a most energetic and competent one, Lieut. Henry Stanbery of Cincinnati, we called upon the otolaryngological staff for help and were greatly aided by Lieut. Weintz of Major Christian Holmes' office. In the same way Major J. A. Harvey of Chicago, in charge of brain and general surgery, has been acting as orthopedic examiner, in the absence of a specialist in that line. In these reëxaminations Col. DeWitt, the division surgeon, tells me that, so far, rejections in this division have been less than the four per cent expected by the Washington authorities.

Casey Wood,

Base Hospital, Camp Sherman, Chillicothe, O., Sept. 22, 1917.

## ASSIGNMENTS IN OPHTHALMOLOGY

### BASE HOSPITALS, U. S. ARMY.

The following list is official, but it is understood that a number of officers have already received or are about to receive elevated rank:

*Camp Sherman*, Chillicothe, O.—Major Casey Wood, Chicago, Ill.; Capt. R. H. Powell, M. O. T. C., Ft. Oglethorpe, Ga.; Lieut. H. S. Stanbery, Cincinnati, O.

*Camp Taylor*, Louisville, Ky.—Major Wm. H. Wilder, Chicago, Ill.; Capt. Chas. Barton, Detroit, Mich; Lieut. H. A. Gorman, Harrisburg, Pa.

*Camp Custer*, Battle Creek, Mich.Capt. Geo. F. Suker, Chicago, Ill.; Capt. John T. Carr, Racine, Wis.; Lieut. M. H. Powers. M. O. T. C., Ft. Oglethorpe, Ga.

*Camp Grant*, Rockford, Ill.—Capt. Thos. A. Woodruff, Chicago, Ill.; Lieut. Harry S. Gradle, Chicago, Ill.; Lieut. E. J. Lambert, M. O. T. C., Ft. Oglethorpe, O.

*Camp Dodge*. Des Moines, Iowa.—Capt. Frank Todd, Minneapolis, Minn; Capt. Louis L. Henninger, Council Bluffs, Iowa; Lieut. Wm. J. Hosford.

*Camp Funston*. Fort Riley, Kansas.—Major P. D. McNaughton, Calumet, Mich.; Capt. J. C. Harding, St. Paul, Minn.: Lieut. Jos. C. Haynes, M. O. T. C., Fort Riley, Kans.

*Camp Lewis*, American Lake, Wash.—Capt. J. J. Kyle, Los Angeles, Cal.; Capt. Wm. E. Joiner, Western Dept.; Lieut. F. G. Sprowl, M. O. T. C., Ft. Riley, Kans.

*Camp Travis*, Ft. Sam Houston, Texas.—Major P. G. Farrell, Chicago, Ill.; Lieut. C. L. Hooper, M. O. T. C., Ft. Riley, Kans.; Capt. R. K. Cole, Camp Robinson, Sparta, Wis.

*Camp Pike*, Little Rock Ark.—Capt. F. Vinsonhaler, Little Rock, Ark.; Capt. E. P. Odeneal, Southern Dept.; Lieut. W. W. Pretts, M. O. T. C., Ft. Riley, Kans.

*Camp Gordon*. Atlanta, Ga.—Capt. L. H. Prince, M. O. T. C., Ft. Oglethorpe, Ga.; Lieut. J. C. McDougall, Atlanta. Ga.; Lieut. C. L. Kaucher, Ft. Benj. Harrison, Ind.

*Camp Jackson*, Columbia. S. C.—Lieut. Burton Chance, Philadelphia, Pa.; Lieut. Samuel H. Long, M. O. T. C., Ft. Oglethorpe, Ga.; Lieut. Paul H. Gerhardt, M. O. T. C., Ft. Oglethorpe. Ga.

*Camp Lee*. Petersburgh, Va.—Capt. Beverly R. Kennon, Norfolk, Va.; Capt. Lewellyn E. Hetrick, M. O. T. C., Ft. Benjamin Harrison, Ind.: Lieut. L. A. Rothrock, Ft. Oglethorpe, Ga.

*Camp Devens*, Ayer, Mass.—Major Walter B. Lancaster, Boston, Mass.: Capt. Otis H. Johnson. M. O. T. C., Ft. Benjamin Harrison, Ind.: Lieut. W. C. McDeed. M. O. T. C., Ft. Benjamin Harrison. Ind.

*Camp Yap Hank,* Camp Upton, L. I.—Capt. Frederick G. Ritchie, New York; Capt. J. R. Forst, Philadelphia, Pa.; Lieut. J. Frederick Herbert, Jr., Philadelphia, Pa.

*Camp Dix,* Wrightstown, N. J.—Lieut. P. H. Moore, Philadelphia, Pa.; Capt. Earl B. Brooks, Pawnee City, Nebr.; Lieut. G. C. VanMeter, M. O. T. C., Ft. Benjamin Harrison, Ind.

*Camp Meade,* Annapolis, Md.—Major E. C. Ellett, Memphis, Tenn.; Capt. R. L. Crockett, Oneida, N. Y.; Lieut. H. Clifton King, M. O. T. C., Ft. Oglethorpe, Ga.

*Camp Wadsworth,* Spartansburg, S. C.—Capt. J. Morris Carter, M. O. T. C., Ft. Oglethorpe, Ga.; Lieut. C. F. Mahood, Ft. Oglethorpe, Ga.

*Camp Mills,* Garden City, L. I.—Capt. E. F. Krug, New York, N. Y.

*Camp Hancock,* Augusta, Ga.—Capt. W. J. Olds, M. O. T. C., Ft. Oglethorpe, Ga.; Lieut. Scott G. Larrabee, Ft. Oglethorpe, Ga.

*Camp McClellan,* Anniston, Ala.; Capt. W. W. Osgood, M. O. T. C., Ft. Benjamin Harrison, Ind.; Lieut. Chas. M. Stiles, M. O. T. C., Ft. Oglethorpe, Ga.

*Camp Sevier,* Greenville, S. C.—Capt. John Halton, M. O. T. C., Ft. Oglethorpe, Ga.; Lieut. E. C. G. Shannon, M. O. T. C., Ft. Oglethorpe, Ga.

*Camp Wheeler,* Macon, Ga.—Capt. Ernest Rau, Bowling Green, Ky.; Lieut. Love B. Moreman.

*Camp MacArthur,* Waco, Texas.—Capt. Newman H. Bowman, Southern Dept.; Lieut. Louis J. Bennett, M. O. T. C., Ft. Riley. Kans.

*Camp Logan,* Houston, Texas.—Capt. A. R. Warner, Southern Dept.; Lieut. J. F. Strauss, M. O. T. C., Ft. Riley, Kans.

*Camp Cody,* Deming, N. M.—Capt. Harry C. Parker, M. O. T. C., Ft. Riley, Kans.; Lieut. John W. Tinder, M. O. T. C., Ft. Riley, Kans.

*Camp Deniphen,* Fort Sill, Okla.—Capt. A. C. Magruder, Western Dept.; Lieut. Walter L. Small, M. O. T. C., Ft. Riley, Kans.

*Camp Bowie,* Fort Worth, Tex.—Capt. Ira H. Dillon, M. O. T. C., Ft. Riley, Kans.; Lieut. Louis N. West, M. O. T. C., Ft. Riley, Kans.

*Camp Sheridan,* Montgomery, Ala.—Capt. A. Thigpen, Montgomery, Ala.; Lieut. N. G. Shafritz, Ft. Oglethorpe, Ga.

*Camp Shelby,* Hattiesburg, Miss.—Capt. Orrin L. Smith, M. O. T. C., Ft. Oglethorpe, Ga.; Lieut. M. C. Wilmot, M. O. T. C., Ft. Benjamin Harrison. Ind.

*Camp Beauregard,* Alexandria, La.—Capt. Robert Loekart, M. O. T. C., Ft. Oglethorpe, Ga.; Lieut. Charles W. Cole, Ft. Riley, Kans.

*Camp Kearny,* Linda Vista, Cal.—Capt. Leon Jacobs, Nogales, Ariz.; Lieut. Frank N. Stiles, Western Dept.

*Camp Greene,* Charlotte, N. C.—Capt. Geo. A. Renn, Newport News, Va.; Lieut. Michael Saliba, M. O. T. C., Ft. Oglethorpe, Ga.

# OPHTHALMIC NOTES FROM BASE HOSPITAL NO. 5, U. S. ARMY, NO. 11 GENERAL HOSPITAL, B. E. F., FRANCE.

BY

GEORGE S. DERBY, CAPTAIN, M. R. C., U. S. ARMY IN FRANCE.

The following was written as a private letter to Major Casey Wood, Camp Sherman, Chillicothe, Ohio, and is now published for the benefit and information of the readers of the OPHTHALMIC RECORD by permission of the Surgeon General:

Perhaps a few impressions of the work over here may be of interest to you and the readers of the OPHTHALMIC RECORD. I cannot pretend that they are more than impressions after only ten weeks' work in France.

Our unit. which, as you may remember, was recruited largely from among the teaching force of the Harvard Medical School, sailed from New York on May 11th and arrived in England on the 22nd. After a week in London to secure equipment and attend to various business details we were transported to France and took over one of the British Base Hospitals, No. 11 General. Since that time we have been learning the ropes, treating quite a large number of wounded and "carrying on," as the British expression has it. The position has been quite a fortunate one for me in several ways, as we are situated within fairly easy reach of two of the largest British eye centers, to which by design eye cases are brought down from the eye centers and hospitals at the front. Therefore there are quite a number of ophthalmologists with whom one may occasionally meet. Col. W. T. Lister, known to many of us, is the Eye Consultant to the whole British force, and their whole system of caring for eye cases has been largely developed by him, as there was nothing when he came out here in September, 1914. Associated with him is Major J. F. Cunningham and younger members of his group are Goulden, Whiting and others. At another eye center still nearer to this hospital is Foster Moore and the younger Juler.

As far as possible the British system provides for a series of eye centers at the front, one for each army, and a series at the base. These latter, in addition to a considerable number of beds for "in" patients, conduct "out-patient" clinics of quite a respectable size. Not all the eye cases get to the eye centers, however, for in a large proportion of patients the injury to the eye is but one of the evils which Tommy suffers. The result is that every hospital has its quota of ocular cases, and it has been customary to have an ophthalmologist in every group of hospitals which does not contain an eye center. The result is that here a ward has been assigned to me and I have had quite a number of cases. Moreover, I have had an opportunity on several occasions to visit eye centers and to establish very pleasant relations with those in charge. I have also been able to visit an eye center at the front during ten days when I was on duty at a Casualty Clearing Station, not far back of the lines. What has impressed me (prepared for war surgery) very strongly, was the amount of work to be done here strictly comparable with the ordinary work at home. At least one case in three handled by the dispensary of the base eye center is a refraction case, there are the usual diseases seen at home—conjunctivitis, phlyctenular and interstitial keratitis, retinitis pigmentosa, conical cornea, vernal catarrh, and a host of others. All those mentioned here I have happened to see. I have removed at least a dozen chronically inflamed tear sacs. Coming to the diseases and injuries dependent on war conditions, as would be expected, we see a very large number of foreign bodies in the eye and adnexa. Many of the orbital foreign bodies are best left alone. Those in the eye naturally must be removed if this be possible, and it often is not, as fully 50 per cent of foreign bodies are non-magnetic. For this purpose no clinic can be considered properly equipped unless it contains in its armamentarium a large and a small magnet, and of the two the large one will be much oftener required. At home I must confess that scleral incision and removal of the exactly localized foreign body (back of the lens) makes a very strong appeal, while out here the Haab method so strongly advocated by Lister is, to my mind, the operation of choice. The fact that 50 per cent of the foreign bodies here are non-magnetic furnishes, to my mind, sufficient argument. Another strong reason is the difficulty of getting a speedy and accurate X-ray of the case. Cases do not dribble in here one by one. They come in large convoys and just when you want the Roentgenologist to devote a considerable time to doing an accurate localization for you, you find that he has forty, fifty, or more urgent cases waiting to be done, some of a very serious nature as regards life.

There are innumerable contusions involving the head and face and often affecting the eye. Many cases have numbers of minute shell fragments in the soft parts. A foreign body may lodge in the interior of the eye and yet present only the slightest evidence of perforation. To be on the safe side, therefore, practically all such cases should be placed before the giant magnet for diagnosis, and if the foreign body can be drawn forward into the anterior chamber, it may be removed by paracentesis and the small magnet.

Needless to say there are many badly lacerated eyes which have to be removed. To minimize the dangers of meningitis, Col. Lister devised the operation by which a frill of scleral tissue is left around the optic nerve, thereby avoiding the necessity of opening the dural sheath. Though one must bow to his large experience, I have not as yet hesitated to do total enucleation in septic cases here or at home. For safety's sake a large cigarette drain may be placed in the orbit, and with this precaution I have yet to see my first case of meningitis from this cause. Neuropathic keratitis is common and about as severe as at home. I have seen very few bad corneal ulcers, but I am told that they are fairly common. Night blindness without ophthalmoscopic findings is frequent, and whether it is a purely nervous symptom or represents a definite pathological condition is not as yet settled. Trachoma among the troops I have seen is rare; it, however, presents a serious problem among the alien laborers. Head injuries, though less frequent since the steel helmet was introduced, form still a very large class of cases, and in this line the ophthalmologist can be of great use to the general surgeons in detecting beginning evidence of intracranial pressure, anomalies of the field and motor apparatus, etc.

An exceedingly interesting class of cases is formed by the victims of the new German gas, accounts of which are just beginning to appear in the newspapers and journals. It is sent over by means of the gas shell and is apparently a nearly odorless liquid, which gives off its fumes slowly, and therefore has a delayed action. I shall not go into the symptoms outside of the eyes: The eyes are practically always affected and among a comparatively large number of cases which I have had the opportunity of examining, lacrimation and burning of the eyes is the difficulty first noticed, perhaps three or four hours after the gassing occurred. Distress increases so that soon the patient is practically unable to open his eyes and has to be led back to the nearest dressing station. In many instances it is 36 to 48 hours and even longer before the patient can get his eyes open. One finds in these cases the signs of what is usually a mild burn, marked injection of the conjunctiva and usually a watery discharge, but sometimes a mucopurulent one. There is nearly always a certain amount of ciliary injection and one will often detect with the loupe a roughening of the corneal epithelium. In the more severe cases one finds a definite corneal opacity in the form of punctate spots or a diffuse clouding which usually does not stain with fluorescein. In the most severe, a definite breaking down of the epithelium takes place and a shallow ulcer is formed. I have not been able to follow either of the cases in which this occurred under my observation. One died unexpectedly some two weeks after being gassed, and the other was sent on to England.

In regard to instruments, I understand our army eye case has been reorganized. The old one lacks a number of necessary things and I would advise the ophthalmologist coming over here to look into the matter carefully and add a few things from his private supply. One or two electric ophthalmoscopes are indispensable and a good rule to follow is to get one with the largest possible handle battery. One can get fairly satisfactory batteries for the jumbo handle here, while the smaller ones are disappointing. Also some form of electric torch taking a battery of the same size is exceedingly useful. It is just as well to bring a dozen extra batteries. If protected from moisture they will last well. A case of test lenses, cards, etc., should be included in every outfit.

There is much more which might be said, but perhaps it is best left for another time.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 25 E. Washington, St., Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Major Geo. E. de Schweinitz has been assigned by the Surgeon General to accompany Lieut.-Col. Lyster abroad on a tour of observation about the first week in October.

Major Nelson M. Black, in the Surgeon General's office, is in charge of the Ophthalmic Division, Department of Surgery of the Head. He is now on a tour of inspection of this department in the hospitals of the sixteen National Army and fifteen National Guard Base Hospitals. He visited Camp Sherman, September 21st-23rd and was much pleased with what he found there.

The Sub-committee on Ophthalmology of the General Medical Board, Council of National Defense, consists of Major James Bordeley, Jr., chairman, with Majors George E. de Schweinitz, Nelson Miles Black, W. A. Wilmer, Walter R. Parker and Allen Greenwood. The chairman, in conjunction with Major King, M. C., is in charge of education and reconstruction—the care and teaching of the blind or nearly blind soldiers of the war.

Cirincione, the Italian ophthalmologist, suggests that each army should have a central hospital for care and treatment of the eyes, wounded or diseased. At present such cases are scattered through the general hospitals or in small eye infirmaries. Rome has six establishments of the latter kind. Equally good results with great saving in equipment and personnel would be realized by consolidating them into one large institution with separate quarters for the cases of simple ophthalmia, isolating those of gonorrheal origin; other quarters for trachoma cases, others for factitious ophthalmia, and a fourth department for observation and study of cases. In his rounds as inspector he has encountered 200 cases of loss of one or both eyes from purulent conjunctivitis going without specialist care until too late. Out of 50,000 men inspected, 2,000 had induced conjunctivitis, not to mention the others who had succeeded in aggravating an existing eye trouble. Only an experienced specialist can sift out these factitious cases—another argument in favor of a single specialist center with each army.

Major Walter Parker (Detroit) assumes Major Black's duties during the absence of the latter on a tour of inspection.

Major Allen Greenwood is, under the Surgeon General, director of the special hospital for the Surgery of the Head to be erected in France for the care of our troops operating overseas

Dr. Slocomb R. Edwards, eye and throat specialist on the medical staff of the Calumet and Hecla Hospital, Calumet, has resigned and will practice in Grand Rapids.

Dr. J. Milton Griscom has been appointed attending surgeon to the Wills Eye Hospital to succeed Dr. Samuel D. Risley. Dr. Risley, who has served on the staff of the hospital for twenty-seven years, was made consulting surgeon.

Dr. Herbert G. Jones. Utica, N. Y., July 5. Age 59.
Dr. Charles E. Beardsley, Ottawa, Ohio, June 26. Age 82.

Dr. G. Oram Ring announces the removal of his office to northeast corner of Walnut and Seventeenth streets, Philadelphia.

Sydney Walker, Jr., who has been attached to the naval recruiting station in Chicago, has been assigned to the Sixth regiment of U. S. Marines. at Quantico, Va. He expects to sail for France soon.

The Virginia state department of health was notified, June 26, that there were a number of virulent cases of trachoma in Mingo, Wyoming County, and that the affected persons had refused to go to the Trachoma Hospital, at Welch, for treatment.

An Irish soldier had lost an eye in battle, but was allowed to continue in the service on consenting to have a glass eye in its place. One day, however, he appeared on parade without his artificial eye.

"Nolan," said the officer, "you are not properly dressed. Why is your artificial eye not in its place?"

"Sure, sir," replied Nolan, "I left it in me box to keep an eye on me kit while I'm on parade."

The State Board of Health of North Carolina is distributing to all physicians and midwives ampules of a 1 per cent silver nitrate solution to be used in the prevention of blindness, in compliance with a recent statute enacted by the legislature.

The following physicians of Philadelphia have responded to the call of the Surgeon-General for men skilled in the treatment of the eye: Dr. George E. de Schweinitz, who has been commissioned a major in the Medical Reserve Corps; Drs. Benjamin F. Baer, Thomas B. Holloway, William T. Shoemaker, John G. Clark, Albert Pilkington, John R. Forst and L. Webster Fox.

New York is to have a Red Cross institute for teaching crippled and blind men to be self-supporting. Jeremiah Milbank has contributed $50,000 for the promotion of this undertaking, and Edward T. Devine of the New York School of Philanthropy has gone to France to study the method of teaching the blind and cripples in the reeducational schools of France.

The scientific societies of Cuba recently joined to present a gold souvenir medal and parchment to Dr. Juan Santos Fernandez of Havana, on the occasion of his seventieth birthday. The Academia de Ciencias, of which he is president, devoted a special meeting to the ceremony of prevention. Fernandez is said to have presented more than a thousand communications at meetings of different scientific organizations.

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August 18, 1917.

Editor of OPHTHALMIC RECORD: Mr. Zorab has called my attention to a regrettable error in the last English edition of Fuchs' Ophthalmology. On page 986 are the words: "This operation, originally performed by Zorab and revived by Wood, is designed mainly for employment in absolute glaucoma."

This gives the impression that the operation of seton drainage or aqueoplasty, devised by Zorab, had fallen into desuetude. This is not the case. Mr. Zorab has performed it systematically ever since he first suggested it, and, that too, not only for absolute glaucoma, but for glaucoma in all stages.

I shall be glad if, in justice to Mr. Zorab, you will make this correction.

Sincerely yours,

Alexander Duane.

The Surgeon-General has authorized the formation in one section of units devoted to the surgery of the head, to-wit: (1) brain; (2) eye; (3) ear, nose and throat; (4) mouth. Maj. T. C. Lyster, chief of the section, says: "The physical disasters which the present war occasions are more severe and more specialized than those of any other war. The men who fight have a right to expect that the physical distress which such combat entails shall be alleviated by means as scientifically accurate as those which can be commanded by the civil population. The vital necessity of opthalmoscopic examination by the ophthalmologist in the work of brain surgery; the need of prompt release by the brain surgeon of increased intracranial pressure to save eyesight; the value of expert examination of the ears by trained otologist in the elucidation of problems of neurology and cerebral surgery; the need of search by the expert rhinologist and oral surgeon for foci of infection in the accessory sinuses, the tonsillar tissues and the dental areas, are well known." The service of such specialized surgery may proceed along three lines:

1. Immediate service, or what is ordinarily known as first aid, to be given at the first dressing station.

2. Later service in the base hospital where all operative procedures of these types of special surgery can be brought into deliberate action.

3. Final service in special hospitals devoted to reconstruction and re-education.

As a result of the activities of the sub-committee on ophthalmology of the general medical board of the Council of National Defense, there is available for the Surgeon-General a list of qualified ophthalmologists willing to serve their country.

In order to prevent the introduction of trachoma into the army, a group of specially qualified ophthalmic surgeons has been selected for the purpose of examining all suspected cases of disease.

Tests for detecting malingerers claiming visual defects have been selected and submitted for approval.

A list of eye instruments for use in base hospitals has been compiled and is ready to submit for approval.

Major Casey Wood has been detached from his former service (charge of the examination of candidates, Aviation Department, U. S. Signal Corps) in Chicago to be head of Surgery of the Eye at the Base Hospital (1,000-1,500 beds) Camp Sherman, Chillicothe, Ohio. Major Christian Holmes has charge of the Ear, Nose and Throat section in the same camp and the four specialties will be housed in a large, separate building liberally supplied with laboratories, offices and other conveniences, for the care of 40,000 soldiers and their officers.

Lieut. Charles P. Small has been assigned to active duty in the Chicago unit. Up to the present time about 1,500 candidates have been examined in this unit.

The following is a list of ophthalmologists in charge of the eye work in the various National Army cantonments, as far as can be obtained at the present time:

Camp Lewis, American Lake, Wash., Capt. Ernest C. Wheeler.

Camp Gordon, Atlanta, Ga., Lieut. Clifford L. Kancher.

Camp Dix, Wrightstown, N. J., Lieut. Wells P. Eagleton.

Camp Devans, Ayer, Mass., Maj. Walter P. Lancaster.

Camp Custer, Battle Creek, Mich., Capt. George F. Suker.

Camp Pike, Little Rock, Ark., Capt. Francis Vinsonhaler and Capt. Erskine P. Odoneal.

Camp Grant, Rockford, Ill., Capt. Thomas A. Woodruff.

Camp Funston, Fort Riley, Kan., Maj. Peter D. Macnaughton and Capt. John C. Harding.

Camp Taylor, Louisville, Ky., Maj. William H. Wilder and Capt. J. V. Littig.

Camp Lee, Petersburg, Va., Capt. Henry P. Gillen.

Camp Sherman, Chillicothe, Ohio, Maj. Casey A. Wood.

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# TENDON TRANSPLANTATION OF THE EYE MUSCLES.

BY
H. W. WOODRUFF, M. D.
JOLIET, ILL.

By tendon transplantation is understood the transference of all or a part of a tendon from its normal insertion to a new one, in such a way that its physiologic function will be changed. The object to be gained by such an operation is not so much the restoration of function in a paralyzed muscle as the substitution of a normal one in its place.

Little in this particular field has been done in ophthalmology. Most cases of incurable muscle paralysis are dismissed as beyond surgical relief, or the operation of advancement of the paralyzed muscle with tenotomy of the contracting opponent is advised. In this way, in incomplete paralysis, good results may be obtained without doubt; but in complete paralysis of a single eye muscle I have never secured a satisfactory result by advancement with tenotomy. I have been a consistent follower of such writers as DeWecker,[1] Landolt[2] and Prince,[3] and I have no doubt that at present their operations, or similar ones, are followed by the majority of eye surgeons when time and treatment have determined that a paralysis is incurable. Dr. Jackson of Denver is the only American writer I know of who has suggested any radical departure from these methods, and it is due to his various references, notably one before this section in 1908, that I was induced to try tendon transplantation in two cases of abducens paralysis which recently came under my care.

Tendon transplantation has yielded results in general surgery. May it not have a future in ophthalmic surgery? As early as 1770, Missa[4] restored function to a finger by substituting other tendons to an extensor which had been severed and could not be sutured. Velpeau[5] advocated this method in 1839.

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[1] DeWecker: Arch. d'ophth., 1904, 24, 421.
[2] Landolt: In Norris and Oliver's System, 4, 66.
[3] Prince: Am. Jour. Ophth., 19, 259.
[4] Missa: Gaz. Salut., 1770, No. 21.
[5] Velpeau: Operative Surgery, 1839.

In 1881, Nicoladoni,[6] at the annual meeting of the Society of German Naturalists and Physicians, showed before the surgical section a 16-year-old boy whom he had recently operated on for paralytic talipes calcaneus. As all the calf muscles were paralyzed, the tendons of the two peroneal muscles were divided and the central ends were implanted into a longitudinal slit in the Achilles tendon. He showed the members of the society that the contraction of the peroneal muscles produced plantar flexion of the foot, while the patient's gait was considerably improved. This brilliant result was unfortunately not permanent. The suture pulled out and the final result was nil. At about this time four or five others tried the operation with negative results, and it was given up by German and Austrian surgeons as early as 1886.

The first American surgeon to do the operation was Parrish[7] of New York, who in 1892 transplanted tendons in a case of clubfoot.

At present, tendon transplantation seems to occupy a place in the surgery of paralysis, although writers differ as to methods and results. Ryerson[8] of Chicago says:

"The two principal methods to be considered are those advocated, respectively, by Vulpius of Heidelberg and by Lange of Munich.

"In the Vulpius method, the entire healthy tendon, or a portion of it which has been partially split off from it, is sutured to the tendon or muscle which it is intended to strengthen. This method and its modifications have been so extensively used by Vulpius and his followers that there would seem to be little doubt of its efficacy. In my experience, however, it has been found of value in only a limited field. It is useful, particularly in the arm and forearm, and in supplying power to the flexors and extensors of the toes; but when used where a considerable strain is to be thrown on it, as in the tibial or peroneal muscles, it shows a tendency to lose its efficiency. This may be due to the stretching of the paralyzed tendon, but in many cases cannot be referred to any definite cause. The operation is technically easier than the method of Lange, but it is not so certain in its results.

After a considerable experience with the method of Vulpius, I began, some years ago, to use the periosteal implantation of Lange. This gave satisfaction in many of the cases in which tendons were transplanted, but proved not strong enough for the silk suspension cords or ligaments used in cases of dropfoot.

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[6] Nicoladoni, cited by Waterman, J. H.: Med. News, July 12, 1902.

[7] Parrish, in Da Costa: Surgery, 1908.

[8] Ryerson, E. W.: The Surgery of Infantile Paralysis, The Journal A. M. A., Nov. 1, 1913, p. 1614.

The principal argument, then, seems to be over the method of implantation or attachment, and I will here quote from Mayer[9] of New York, to whose writings any one interested is referred. Mayer says:

A rational system of tendon transplantation must be based on an accurate knowledge of the anatomy and physiology of tendons and muscles. That our present systems are empiric rather than rational is shown by the marked discrepancy in the operative methods of prominent orthopedic surgeons. Thus Lange, on a basis of over 2,000 tendon operations, is radically opposed to Vulpius, whose experience is almost as great. Lange insists on the periosteal implantations of the tendon, and lengthens the tendon artificially by silk strands. Vulpius maintains the advantages of sewing the transplanted tendon to the paralyzed tendon as advocated by Nicoladoni in 1882.

In the same article Mayer says the principal cause of failure in addition to inefficiency of fixation is post-operative adhesions on account of disturbed relationship between the tendon and its sheath.

In the eye muscles, Parinaud[10] and Motais[11] were the first to utilize a part of one muscle to perform the work of another. The Motais operation has now become a rather popular method for the cure of ptosis.

Edward Jackson[12] has operated for paralysis of the superior oblique by transplanting the superior rectus to a new insertion farther backward and outward from its normal insertion, thus relieving the tendency of the eye to turn upward, and at the same time increasing the power of intorsion and abduction.

Hummelsheim,[13] in 1907, performed several experimental operations on two monkeys by transplanting the nasal valves of the tendons of the superior and inferior recti to the attachment of the internal rectus after destroying its action by an extensive resection of its tendon. In the first animal there was no noticeable disturbance of motility after six weeks. The second animal died from some unknown cause, before any observation could be made.

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[9] Mayer: Surg., Gynec. and Obst., February, 1916, p. 182.

[10] Parinaud: Ann. d'ocul., 1897, 117, 12.

[11] Motais: Bull. et mém. Soc. d'ophth. de Paris, 1898.

[12] Jackson, Edward: Ophth. Rev., 1903, p. 61.

[13] Hummelsheim: Ber. d. ophth. Geselsch., Heidelberg, 1907, p. 248.

Hummelsheim refers to a work of Marina in which he discusses the transplantation of the superior oblique for the removed internus or externus. Marina referred to Dr. Cofler as the operator, and said that he would report concerning the technic and the practical results in man. Hummelsheim, however, was not able to find any such report. His own experimental operation and the statements of Marina were sufficient to cause him to attempt the operation on the human eye.

A 12-year-old girl came to him with presumable congenital paralysis of the right abducens. The eye could not be turned outward beyond the median line. He transplanted the temporal halves of the superior and inferior recti and obtained an abduction of 30 degrees without any loss of vertical rotations. Binocular vision, however, was not obtained.

Hummelsheim[14] reports a second case one year later. This patient was a woman, aged 47, with an incurable acquired paralysis of the abducens, of eight months' duration. He performed the same operation with somewhat different technic and without tenotomy of the internus. stating that he did not wish to alter the scope of the operation experiment. The result of the operation was parallelism when the eyes were looking straight forward. Double vision was abolished except on extreme abduction. In this case there was some limitation of the upward rotation, but fortunately not in rotation downward. As this paralysis did not appear until five months after the operation, he argues that it was not traumatic, that is, caused by his operation.

Stuelp,[15] Jan. 6, 1912, operated after the same method in a case of marked convergent paralytic strabismus. On the third day he noted that there was a marked improvement in the strabismus but no further active outward movement of the eye. This later was effected after three weeks more following a tenotomy of the rectus internus. Stuelp states that his result was functionally not brilliant but that the condition was improved.

## REPORT OF CASES

CASE 1.—*History.*—Nov. 14, 1916, Dr. Charles Burkholder of Chicago referred to me a case of paralytic convergence in a girl, aged 20 years. She attributed her paralysis to a fall, when 6 years of age, in which she struck on the head behind the left ear. When 15 years of age she had had an advancement of the paralyzed muscle with tenotomy of the internus. This, she thinks, had improved her condition to some degree. About a month before Dr. Burkholder saw her she had had another tenotomy of the internus.

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[14] Hummelsheim: Arch. f. Augenh., 1908, 62.

[15] Stuelp: Klin. Monatschr. f. Augenh., 1912, 50, 467.

At the time of her admission to the hospital, she had 20 degrees of convergent strabismus when looking straight forward, but only the slightest perceptible movement of outward rotation.

Realizing the hopelessness of the ordinary procedures and the repeated failures, I considered the advisability of transplanting the whole of the tendons of the superior and inferior rectus muscles to two points on the globe midway between the superior rectus and the externus, and between the inferior rectus and the externus, respectively. After reading of Hummelsheim's experiments and results in his two cases and the fact that the function of the superior and interior rectus were not disturbed, I followed his method.

*Operation.*—Anesthesia was secured by subconjunctival injections of novocain and epinephrin over the sites of the four rectus muscles. The tendons of all four muscles were exposed by incisions through the conjunctiva and capsule. The outer halves of the tendons of the superior and inferior recti were separated for about 12 mm., and each tendon flap was sutured to the tendon insertion of the paralyzed muscle with 00 catgut treated with formaldehyd. The internal rectus was freely tenotomized and the conjunctival wounds closed with silk. Both eyes were bandaged for three days. The operated eye was bandaged for one week. There was distinct improvement but still a slight convergence. This I attempted to relieve by shifting the remaining normally attached portion of the superior and inferior recti to positions slightly outward so that they would no longer act as adductors. This secondary operation was of doubtful success, so that at present the condition is substantially as it was two weeks after the first operation.

Case 2.—Dec. 26, 1916, I performed the same operation on a boy, aged 7 years. He had been brought to me the previous May with a marked internal paralytic squint of the left eye. When he was 7 months old, the left side of his face was paralyzed, and the eye turned in at the time. He had had an operation of advancement and tenotomy four years before without result. It was suggested to the parents of the patient that there was a possibility of straightening the eye, which was finally attempted, Dec. 26, 1916.

The operation was the same as that in the first case. The result, however, cosmetically was better, but functionally the same, as there was no movement outward beyond the median line in either case. As both these patients were amblyopic in the paralyzed eye, the question of diplopia did not arise.

It will be noticed that in Hummelsheim's experiment on the monkey, he reports no loss of motility after six weeks.

Partial paralysis produced by operative interference is not exactly comparable to complete paralysis from central causes.

In his case of the 12-year-old girl there was ability to turn the eye outward to the median plane; therefore the paralysis was not complete. The securing of 30 degrees of abduction was a brilliant result, yet the patient undoubtedly possessed horizontal rotation of that amount before the operation.

In the case of the woman aged 47, he does not state the degree of rotation; but the result was good, as he secured parallelism when the eyes were directed straight forward, and double vision abolished except on extreme abduction.

Stuelp himself claims an improvement only in the strabismus in his case; and my two cases would also tend to show that while restoration of function is not possible to any degree by partial transplantation, improvement in the strabismus is possible. The failure to secure altered function, that is abduction in these two cases is probably due, as Mayer states, to adhesions, so that the superior and inferior recti do not act from the new point of insertion, but at the point at which the tendons were split, the transplanted tendon flaps acting more as ligaments to hold the eye outward, especial after the tenotomy of the internus.

Nevertheless, it would seem that the results in these five cases (omitting the animal experimentation of Hummelsheim) should place incurable paralysis in the operative class.

Whether or not work along these lines will lead to improvement in function, the static result is certainly worth while.

## ABSTRACT OF DISCUSSION

Dr. F. C. Todd, Minneapolis (with moving picture demonstration): I wish to show a picture or two illustrating a case in which an operation of the kind described by Dr. Woodruff was performed. My experience has been much the same as Dr. Woodruff's, but you will see by the moving picture that some motion will result from the transplantation of the external half of the superior and inferior recti muscles.

The same principle would seem to hold true in respect to this case as in the case described in the paper. It is a case of the congenital absence of the external recti. This patient gives a history in the family for some generations back of strabismus, and he is a man 60 years of age, with a strabismus of 95 degrees. His history showed that eight years previously his strabismus had been very much less, and I have a picture showing what it was seventeen years previous to the time I saw him. I did not know what the cause of the strabismus was until the operation. I operated on one eye, cutting the internal rectus completely. I could do nothing else. I then attempted to do the zig-zag operation. Finding the absence of the external rectus, I attached the capsule of Tenon to the globe farther forward, as was described in the paper last year at Detroit. We had a limited improvement but it was not very satisfactory, and did not hold, and gave no motion. I then operated on the other eye later by completely tenotomizing the internal rectus, and did this operation described by Dr. Woodruff, separating the superior rectus and the inferior rectus and splitting it and attaching it to the globe on the outside. I then later did the same operation on the other eye. Now this man has not completely straightened eyes, but as nearly as I can get them; but he is able to see as he was not able to do before, and he is able to read and has some motion, which is improving. You will see two sets of pictures, in which the second shows some improvement of motion after some training.

Then I want to show a picture following that (because it fits in with this case), of a woman who had an operation for convergent strabismus in childhood, with complete tenotomy of both interni, and the strabismus which results from that sort of operation, and in which we could not find the internal recti anywhere. In the paper read last year I called attention to the fact that these muscles are really existing and in the capsule, and if you will advance the capsule you will find that you will get the use of these muscles as suggested in the paper of Dr. Woodruff. This picture shows that she has considerable movement in the direction of the cut muscles, so that there is some action in spite of the fact that they are not attached to the sclera, and I show it to compare it with the other case.

Dr. Arthur S. Tenner, New York: My experience with tendon transplantation is limited to one case. I presented that case two weeks ago before the eye section of the New York Academy of Medicine. The patient in that case was 19 years of age, with a congenital abducens paralysis of the left eye, which produced a convergent strabismus of about 30 degrees. The eye, as in Hummelsheim's case, could be rotated outward almost but not quite to the median line.

The operation that I performed was in almost every respect similar to the one described by Dr. Woodruff, with these exceptions. I performed no tenotomy of the internal rectus, thinking if that were necessary I could do it afterward; and secondly, the tendon flaps of the superior and inferior recti were sutured to the sclera somewhat in advance of the external rectus—about 3 mm. I got a very severe reaction in this case and there was some sloughing of the flaps, especially the superior. I attributed that, not to infection, but to the tension on the sutures. As in the cases presented, however, there was some improvement in the strabismus, quite decided, and I did get some increased motility outward, and, as in Dr. Todd's case, that abduction increased as time went on. I cannot say that it is very great, and it is mainly due, in my case, to the action of the transplanted tongue of the inferior rectus, which probably got a better hold than the superior and probably less of it sloughed away. At any rate, the action is downward as well as outward.

While the results of these operations leave very much to be desired, I think they are sufficiently satisfactory, especially as in the case shown by Dr. Todd, to encourage further efforts in this direction.

As the result of my experience I would venture to make the following suggestions: To lessen the reaction after the operation it might be sufficient, it seems to me, to transplant only one muscle, or only one tongue of muscle: that is, the external half either of the inferior or superior rectus, depending on which seemed to have the stronger action. Another suggestion that I would venture to make is that instead of suturing the tongue of muscle to the external rectus, the paralyzed muscle, I would suture the tongue of muscle farther forward, nearer the limbus, because on theoretical grounds, we should get better abduction if this were done.

Dr. Meyer Wiener, St. Louis: A few years ago I conceived the idea of solving this problem for the relief of paralysis of the external rectus, and I performed a number of experiments on dogs in the surgical laboratory of Washington University. I operated on five dogs, excising the externi in both eyes, leaving one as a control, and transplanting the outer half of the tendons of the superior and inferior recti to the insertion of the externus on the other. The results seemed very good. After I got ready to report my cases I found Hummelsheim's report. He had already reported his case. Afterward, however, I had occasion to operate on a patient with paralysis of the externus in which I used this operation with a modified technic. Instead of doing it subconjunctivally I exposed the three tendons. It is very much easier in the human eye than on dogs. This patient had complete paralysis of the externus, and when I last saw him he had an excursion of 20 degrees outward past the median line. The patient was followed for some time by Dr. Barnes of Enid, Okla. He had 25 degrees then, and the last time he saw him he had 30 degrees excursion past the median line.

**Dr. H. W. Woodruff**, Joliet, Ill.: I congratulate Dr. Todd. His demonstration shows that he secured a magnificent result. The necessity of doing a tenotomy of the opposing muscle, it seems to me, is very great, because of the tension under which the transplanted flaps are held. Dr. Tenner advises placing the new insertion of the flaps farther forward than the insertion of the paralyzed muscle. Of course this adds to the effect, but also increases the tension, which is considerable, while by fixing these flaps to the thick portion of the sclera where the external rectus is attached, and by doing a tenotomy, you will have a minimum amount of tension. As far as the reaction following the operation is concerned, of course it is considerable, but not at all alarming in any way. The operation is extensive, really four operations in one, the tendons of all four recti muscles being exposed—you might call it a double advancement operation and a tenotomy—so that it makes a very extensive and somewhat tedious operation; but the result justifies it.

# ANTI-TYPHOID INOCULATIONS AND OCULAR LESIONS.

BY

F. PHINIZY CALHOUN, M. D.

ATLANTA, GA.

Recent French journals of ophthalmology have reported a few cases of ocular lesions following anti-typhoid inoculations. At first it was thought that the association of the two conditions was merely a coincidence, but as additional cases appear, it would seem that there is some real relationship between the inoculations and the ocular disorder.

I have recently seen the two following cases from the Officers Training Camp at Fort McPherson, Ga.

Case 1. Mr. B., age 35, lawyer, was admitted to the camp May 11th, 1917, having passed a rigid physical examination, and I am informed that his vision was 20/20 in each eye. On May 12th he was vaccinated for smallpox, and given the first inoculation for typhoid and para-typhoid. The following day the right eye became a little inflamed, and on the 14th he reported to the post hospital for treatment and was there confined and given treatment for an acute conjunctivitis. As the eye grew worse I was called to see him on the 19th.

The examination showed a marked injection of the globe which was tender to palpation. The pupil was small and did not react to light. There was posterior synechia and the aqueous was cloudy. The patient had suffered a great deal of pain, and vision was reduced. A typical picture of iritis was recognized. There was no previous history of an ocular disorder. He denied syphilis, but acknowledged an old Neisser infection. A Wassermann was negative, but there was a slight positive reaction to the Neisser complement fixation test. Teeth and gums appeared normal, as was the nose and throat examination (no X-Ray). Under the usual treatment of hot fomentations, atropin, dionin and alteratives, the eye completely cleared and he was dismissed June 17th with 20/20 vision (atropin). He did not receive other inoculations and was dismissed from training.

Case 2. Mr. L., age 22, entered the training camp May 11th, 1917, after having passed the necessary physical and visual examinations. I am told that his vision was below standard in each eye, but brought to 20/20 with minus cylinders. He received the vaccination for smallpox, and the first inoculation for typhoid and para-typhoid on May 14th, the second on the 20th, and the third on the 27th. On June 1st he reported to my office complaining of blurred sight in the left eye of a few days' duration. There had been no pain or redness in the eye. The examination of the left eye showed 20/30 vision, the pupil was smaller than the right, and there was a slight circumcorneal injection. After dilation I discovered a few posterior corneal deposits, a few vitreous opacities and an area of acute choroiditis about the size of the disc, situated below the macular region, and another smaller area between the superior vessels about a disc diameter from the nerve head. He denied venereal infections. A Wassermann was positive + + + No other source of infection could be found. He was given one injection of Salvarsan in addition to appropriate doses of mercury and potash. In due course of time he was rejected and returned to his home for additional treatment.

I have heard from a colleague of another case of iritis in this camp developing a few days after vaccination and inoculation.

In the French army similar complications have been noted, but de Lapersonne, while recognizing the importance of the question, does not at the present time see the relationship, except in cases of imperfect asepsis where metastasis might develop. He reports the loss of an eye from a metastatic purulent uveitis following a septic pneumonic infection after the third inoculation of anti-typhoid vaccine.

It has been argued that these ocular infections are similar to the changes which take place following the administration of tuberculin and arsenical preparations, especially where the eye is a focus of an old lesion.

Morax reports the occurrence of an herpes corneae after the fourth injection in an eye with scars of a former keratitis. A recent editorial in the British Journal of Ophthalmology sounds a warning for closer observation and investigation of such cases, and as we are now preparing our first army for active service, ample opportunity will be given us to observe these eye changes should they arise, and form some more definite conclusion as to their cause. From this limited experience no suggestion is offered except that the foreign protein material introduced from the inoculations might act as an irritant to some latent process as has been previously suggested.

de Lapersonne, Arch. d' Ophthal., March, 1917.
Morax, Annal. d' Oculist, May, 1916.
British Journal of Ophthalmology, July, 1917.

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# SAFETY FIRST IN THE CATARACT OPERATION.*

BY
R. W. PERRY, M. D.
SEATTLE, WASH.

The dominant idea of the operator in this operation should be "safety first," and simplicity is the corner stone of safety. Anaesthesia that is complete, knives that are perfect in edge, and manipulations that are few and simple, make for success.

It has been my observation that we have more escape of vitreous in our operations now, than had the operators twenty years ago, and I believe this is due to a desire to obtain a conjunctival flap and consequent passing of the corneal incision too far backward into sclera.

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* Read before Pacific Coast Oto-ophthalmological Society, Spokane, Washington, June 18, 1917.

Do not mistake me—I do not mean that a flap that comes in the natural course of events should be discarded, but I will say that a manipulation which in my observation has brought calamity on many operators of international reputation may conceal pitfalls which the less expert may well avoid.

The general condition of the patient is of great importance.

If blood pressure is found abnormally high, it should receive attention. There are two kinds of blood pressure in these cases: The constant and the transient. If the high blood pressure is constant, it may be largely disregarded, but if it is a recent increase, and due to action and excitement incident to the coming operation, it is of most importance. Keep the patient in bed for two days, and then, if there is no perceptible change in pressure, you may consider it permanent, and that the eye is accustomed to it.

However, if the blood pressure shows an improvement, it is well to continue the recumbent posture as long as improvement is noticed.

The condition of the kidneys and conjunctiva should be investigated, and the mentality of the patient not disregarded. These patients are usually old, and have certain fixed habits of mind and body which it is often well to humor. Aim to have your patients comfortable, and as near to their normal life as possible.

As comfort is the foundation of success, the local anaesthetic is a matter of first importance.

I have seen several disasters due to the fact that the eye was improperly anaesthetized. In fact, in my judgment, it is a rarity to find a surgeon who does not skimp in this important matter.

The patient must be free of pain during all manipulations, and must have been assured of the painlessness of the operation.

The other eye should also be partially anaesthetized, and so remove from it a desire to close on slight irritations.

I use a combination of cocaine 4%, and holocain 1%, and do not start the operation for at least twenty-five minutes after the first instillation.

The fixation forceps should produce on the contents of the ball, at all times, a minus, and not a plus tension. The power of the fixation forceps in this direction is not generally appreciated.

Do not disregard the condition of the cataract knife. Not over one in three knives purchased in the open market is equal to this work. The knife I use is from Weiss of London, and yet I find that, even from this source, one knife in four lacks the keen edge and point for good work.

No one but the operator should handle the knife after examination, and boiling water or strong antiseptics should not be used in its sterilization.

The patient should be perfectly comfortable in mind and body, the mouth open, muscles relaxed, palm of hand open, and thumbs outward.

Do not operate through a knot hole.

To cover the patient's face with gauze or protectives serves no useful purpose, and but gives them an uncomfortable sense of suffocation.

Let the corneal incision be large—over one-third of the cornea, so that the lens is not crowded in passing.

If undue pressure is used, there is danger of escape of vitreous. If the lens is crowded, it may not escape entire, but there may remain in the anterior chamber lens matter that will require further manipulation for its removal. Let your incision be in the cornea, for by it you obtain all that is necessary, and the danger of escape of vitreous is not so great as in the more posterior incision.

In 1901, when I finished my second ophthalmic hospital interneship, I felt that I could catalogue each operator as to escape of vitreous by the position of this incision, and since that time I have seen nothing to change my mind in this particular—and much to confirm it. At that time, I established for myself a law that, all other things being equal, the danger of escape of vitreous in the cataract operation is in direct proportion to the distance backward from the cornea the incision is placed.

I do an iridectomy in all cases. The disadvantages of this over the simple operation are largely imaginary, while the danger of prolapse of the iris is real.

I wish,also, to introduce to you a method that I have used in my last three cases with good success, and which, I believe, has some merit. I do a preliminary capsulotomy by a modified Harmon Smith method.

The pupil is fully dilated by atropine, and an incision is made in the capsule for about one-third the circumference and as near the upper edge of the lens as possible.

If there is any suggestion of increased tension in eight hours, I complete the operation; if not, I wait until the following day. In two cases, I found that the lens passed readily and easily without further capsulotomy and, in the third case, I felt that the previous incision was useful.

I have never been troubled with striped keratitis.

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## AN UNUSUAL CASE OF ELECTRIC OPHTHALMIA.

BY

D. E. COMPERE, M. D.,

DALLAS, TEXAS.

Mr. W. H. R., age 45, carpenter. History furnishes no trace of previous eye trouble. Vision, both eyes, 20/20. Wassermann just after injury negative.

On October 12, 1916, he was chiseling a 3x12 plank, to counter-sink bolt heads to protect a trolley wire from danger of exposure, and while drilling the chisel came in contact with a 16-penny nail which was driven in from the upper side of the plank, the head being invisible. When the chisel struck the nail contact was made with the electric trolley wire which was hanging under the trough. This produced a great electric flash, while he was lying flat on his back drilling upwards. After the accident he was picked up about 12 feet from the place he was working.

The flash had melted off the point and head of the nail and about 1 inch of the point of the chisel and burned an impression of the trolley wire in the side of the chisel. It also blistered his left hand and arm to the elbow, three finger nails and the skin of the entire hand peeled off. There were deep burns on inside of wrist leaving large scar; scorched right side of face, singed hair, eye brow and eye lashes. He was unconscious for several hours.

The left eye was shielded somewhat by his left hand and chisel.

The right eye became very red and painful; there was acute conjunctivitis.

Upon my first examination October 18, 1916, the conjunctivitis was not so marked. There was a foggy lens, aqueous and vitreous; also a marked retinitis with a choked optic disc. The nerve-head was very pale and indistinct; the blood vessels were considerably distorted and congested. This inflammatory condition gradually diminished, but the hazy condition of the media increased. Later, in the center of the cornea there was a faint spot, about 1 mm. in size; also a milky infiltration in the corneal layers.

The opacity of the refractive media has developed to such an extent that with the luminous ophthalmoscope the vessels and optic disc can only be discerned with a plus 10 D. lens and then only faintly. The vision in the right eye is bare perception of light.

In the left eye the optic disc is of a pale color, with a very distinct white line around the entire external rim, which has gradually increased in breadth; also a small, white spot in the center of the disc just external to the blood vessels, which is also increasing in size. This may indicate a sympathetic irritation and this indication is sustained by the fact that the vision in the left eye is now 20/100 and is gradually diminishing.

A future account of this case will be given, if anything of interest develops.

# SOME REMARKS CONCERNING AN EXTENSIVE PLASTIC ECTROPION OPERATION WITH A PEDICLED FLAP.

BY

FRANK ALLPORT, M. D.

CHICAGO

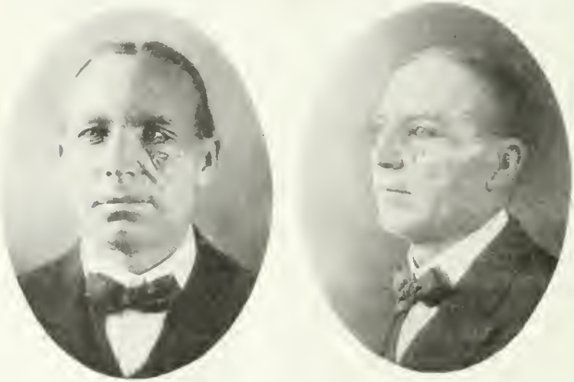
In line with the excellent results that are being accomplished in Europe at the present time with plastic surgery of the eye, etc., I am presenting the report of a case of an extensive operation made for ectropion of the lower eyelid, wherein the procedure employed was an incision and the transplantation of a pedicled flap.

I have nothing new to offer in this instance, since I employed simply the so-called Indian operation, namely, transplanting the flap from an adjacent part, but will call attention to a few points which I believe were conducive to the success of the operation.

The patient, G. J., a railway employee, was injured, having been struck by a train. Among other injuries he had a depressed fracture of the left malar bone. When I first saw him, about three months after the accident, he had a very adherent cicatrix over the fracture and there was an extensive and complete ectropion of the entire lower eyelid of the same side, the lid being drawn down to the scar to the fullest extent. He presented a most unsightly appearance.

The first incision made was about one-fourth inch below the edge of the lid, and followed the curve of the lower lid in its entirety. The integument over the cicatrix was well loosened and undermined in all directions by sharp and blunt dissection. At the temporal end of the incision a very large pedicled flap was cut in an upward and backward direction in the skin of the temple. The incision of the flap was such that when it was transplanted below the eye, the lines of the flap and the lower skin incision would correspond. In the fashioning of this flap one will obtain a more satisfactory result and less tension on the sutures if the adjacent skin is extensively undermined, insuring a greater mobility. At this particular point, too, where the operation is so close upon the bony structure, the pedicled flap would doubtless survive where other forms of skin graft would be failures.

The sutures employed in the operation were interrupted, or single silk sutures, placed closely together, and the point of the operation most gratifying was the perfect approximation of the lower lid to the globe. Not much shrinkage follows this operation. After the suturing was completed the underlying tissues were freed of all serum by rolling over the lines of suture a bit of rolled gauze. By firm "rolling" a considerable amount of serum is expressed, which otherwise would be an excellent culture medium, or cause suture tension by swelling.



Showing Result of Pedicled Flap Operation.

I submit these few points with the report of the case, as I believe they contribute largely to the success of this sort of surgery.

Accompanying are two photographs of the result attained.

# A PROTECTIVE EYE SHIELD.

BY

## JAMES M. PATTON, M. D.

OMAHA, NEB.

Since the almost complete disappearance of the bull's eye watch crystal from the market, the difficulty in securing suitable glass shields for protecting the non-infected eye in cases of purulent ophthalmia suggested the shield here illustrated. I first had a large drop oval cut from a plano toric blank, but this was discarded as it could not be adapted to the shape of the orbit and cheek. A round window of glass was then placed in the regular Shado eye shield, which was later enlarged as shown in Fig. 1.

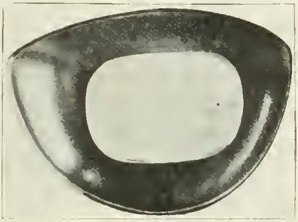
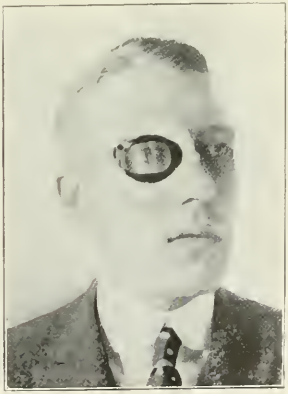


Fig. 1. Dr. Patton's Eye Shield With Glass Window.



Fir. 2. Dr. Patton's Eye Shield in Position

This shield is accurately shaped to fit the brow, nose and cheek, gives a wide range of vision, is easily sterilized, and can be firmly held in position with adhesive strips or better, by a narrow strip of collodion and cotton, as shown in figure two. An open space should be left at the outer angle for ventilation. The shields were made for me by the Riggs Optical Company of Omaha.

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## A CASE OF RE-ATTACHMENT OF THE RETINA—TREPHINE OPERATION.

BY
EUGENE M. BLAKE, M. D.
NEW HAVEN, CONN.

The following case is reported in order to add one more to the growing number of cases in which the trephine has been useful in curing detachment of the retina.

On September 28, 1916, a girl of thirteen was brought to me for the relief of headache and because the left eye had gradually been getting blind. In the summer of 1914, two years previously, she was struck in the left eye with a twig. The eye had been "cut in the white," as the mother expressed it. She was treated by her family physician. Until recently the child had been able to see "across the room," but now had no sight in the injured member.

Examination showed the left pupil wider than the right and reaction to light very sluggish. The iris was not on the same plane. With the ophthalmoscope, the whole lower half of the retina was seen to be detached. Vision was reduced to the perception of hand movements in the lower part of the visual field. The eye diverged moderately. The possibility of improvement by trephining the sclera and evacuating the subretinal fluid was suggested and, after proper consideration by the parents, was consented to.

On November 7, 1916, the operation was performed under cocaine anesthesia, a 3 mm. button of sclera being removed from the lower temporal quadrant, as far back as possible. A small amount of fluid followed the removal of the trephine. Healing was uneventful. The patient returned to my office for examination 15 days after the operation. She was able to count fingers at five feet, the lower field was good, the upper lacking. Fixation was eccentric. The detachment was still present, but there was a line of adhesion part way down.

The patient was next seen on December 29, 1916, and on my record there appears the note "there seems to be a rent in the retina." Vision was still fingers at five feet. April 21, 1917, patient returned, saying that she could see better, and the detachment was seen to be smaller. With a+2.cy.ax.90 vision equaled counting fingers at 13 feet.

On September 22, 1917, the patient was again examined. I was unable to detect any detachment of the retina. There were numerous white lines in the retina, such as are seen when this membrane adheres to the choroid. Her field was of normal extent and vision, corrected, 20/200.

Apparently ten months were required for this rather unusual result to be accomplished. For the first few weeks the eye was under atropine, but no other treatment, except glasses, was given. All severe bodily exercise was forbidden, but the child attended school regularly throughout the year. Fortunately she was a girl of quiet ways and not given to violent playing.

In view of the almost uniformly bad results in the treatment of retinal detachment it would appear that the trephine may be of use in some, especially traumatic, cases. The fact that the detachment must have been progressing for two years before operation and that ten months were required for the reattachment are worthy of note.

# INTERSTITIAL KERATITIS—WITH SPECIAL REFERENCE TO THE END-RESULT*

BY

GEORGE S. DERBY, M. D.

BOSTON.

The cases on which this study is based have been selected from the large series of persons with hereditary syphilis and interstitial keratitis who have been so fortunate as to come under the skillful care of Drs. Abner Post and C. Morton Smith during the past five years.

Interstitial keratitis is one of the most studied of eye diseases. It can boast of a most voluminous literature, in which almost every phase of the process is exhaustively discussed. From the standpoint of history, symptomatology, pathology, experimental research and therapy, it has claimed the interest of many of the best ophthalmologic minds of the present and past. That not all of its problems are yet solved is due rather to their complexity than to a failure of competent men to attack them. One most important question has, however, received but scant attention, namely, an exact knowledge of the end-result. With that feature in mind, the study reported here is principally concerned.

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*Released by Journal of A. M. A.

A large majority of the patients were personally examined, and most of the remainder were seen by Dr. Alexander Quackenboss, chief of service of the Massachusetts Charitable Eye and Ear Infirmary. In a few instances, when neither Dr. Quackenboss nor I was on duty, other members of the staff kindly took the task on their own shoulders. To them, and especially to Dr. Quackenboss, I wish to make my grateful acknowledgment.

In the whole series, except in a very few instances, only cases were accepted in which the inflammation of the eyes had come to an end at least two years previously. Thus, the visual results obtained may be regarded as reasonably permanent, although we cannot bar out the possibility of some slight further clearing of the cornea in some cases, and in others deterioration of sight due to recurrence of the disease or to the development of myopia.

The whole number of cases observed here is ninety-six, comprising ninety-four in which the disease had occurred in both eyes, and two in which up to the time of the examination only one eye had been affected; thus, a total of 190 eyes are available.

*Corneal Opacity.* — By careful examination with oblique illumination, it was possible to note a corneal opacity of greater or less density in 168 eyes, while in fourteen none could be seen. This opacity varied from thick leukomas in a few cases to the finest possible haze in others.

*Vascularization.*—The examination for vessels in the cornea was made with the ophthalmoscope and a strong convex lens, after the pupil had been dilated as much as the condition of the eye would allow. In 186 eyes, vessels were found in 171 and were absent in fifteen. In some cases I have observed them after the lapse of many years, as has been noted by others. Whether or not avascular cases occur is a matter of some discussion. Von Graefe, Vossius, Gutmann, von Michel, Knies and Elschnig are in favor of it; while Fuchs, Saemisch, Galezowski and others believe that this is seldom or never the case. As a rule, the vessels persist for years. Hirschberg has observed them ten, fifteen and even twenty years after the disease, and believes, as does Silex, that they never disappear.

Bearing on this question, the following case is of interest:

A doctor, aged 69, who had been in very delicate health as a child, at the age of 14 had inflammation of both eyes lasting one year, with recurrence five years later. When 38 years old he was seen by Dr. O. F. Wadsworth of Boston. At this time corneal scarring was marked and there were many patches of choroiditis in the periphery of the fundi. When I saw the patient, February 19, 1917, there were diffuse corneal scars of each eye. There were marked signs of old vascularization in the corneas. There were many patches of chorioretinitis in the periphery of the fundi.

V. R. —10. sph. —2.0 cyl. axis 90 = 1/20

V. L. + 7. sph. +1.0 cyl. axis 90 = 1/10

This case, therefore, shows unmistakable evidence of vessels in the cornea fifty-five years after the original inflammation.

Baas has reported a case in which no evidence of vessels could be detected clinically, and yet the histologic examination later showed their undoubted presence.

*Iris.*—As to the involvement of the deeper portions of the eye, we note the presence of posterior synechiae in sixty-two eyes. My experience, however, bears out that of Hoor,[2] namely, that in frequent instances the involvement of the iris and ciliary body bears but little relationship to the severity of the corneal process. Where the keratitis itself is of but average intensity, it is sometimes only with the greatest difficulty that dilation of the pupil can be obtained, while at times with a severe keratitis dilation is accomplished by very moderate installations of atropin.

*Lens.*—In four eyes, slight opacification of the lens was left behind. Axenfeld has observed peculiar circumscribed opacities occupying the situation of previous posterior synechiae and appearing as faint, star-shaped thickenings of the capsule, which show fine pigment deposits under high magnification.

*Vitreous.*—In eleven eyes, vitreous opacities were noted. In thirty-eight eyes, by reason of the corneal scars, or of the permanently contracted pupil, it was impossible to make a satisfactory examination of the deeper structures.

*Choroid and Retina.*—We have notes on the fundus examination of 148 eyes, and of these, eighty-one showed lesions of the choroid and retina (55 per cent.) mostly in the form of disseminated rounded lesions, usually situated in the equatorial region. That in some negative cases lesions existed forward of the equator is not to be doubted. The percentage of chorioretinitis recorded here is much higher than any I have come across in the literature. It should be said that the examination was made with the greatest care, with dilated pupil, and that special attention was paid to the periphery of the fundus.

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[2] Hoor: Die parenchym. Hornhautentzündung, Samml. Zwangl. Abhandl., 7, 788.

As it happened, the eyes were examined in two series. In the first, comprising eighty-eight eyes, forty-eight were positive, 54.3 per cent. In the second, of sixty eyes, thirty-three were positive, exactly 55 per cent.

In regard to the relationship of the fundus changes to the corneal disease, I feel that while in a certain number of cases of intersitial keratitis in which the involvement of the uveal tract is beyond the ordinary, fundus lesions may develop, yet in the majority of cases they appear independently of the corneal process and usually antedate it. It has been possible for us to observe in several instances the presence of such lesions in the choroid and retina in the uninvolved eye of patients with a beginning interstitial keratitis.

*Vision.*—With the exception of Igersheimer's article,[3] I have been able to find little or no definite information as to the visual results among the sufferers from this disease, a feature of the greatest importance. Our results are recorded in the two tables presented. All visions were taken under a mydriatic and with the appropriate correction.

**Table 1.—Vision of 161 Eyes Examined.**

| No. of Eyes. | Vision. |
|---|---|
| 32 | 10/10 |
| 17 | 7/10 |
| 18 | 5/10 |
| 13 | 4/10 |
| 25 | 3/10 |
| 14 | 2/10 |
| 17 | 1/10 |
| 25 | less than 1/10 |

Table 1, which gives the vision of 161 eyes examined, does not truly represent the exact degree of disability in each case, as the two eyes must be reckoned together, for many children possessing one good eye get on practically as well in school as do those with two. In later life their disability consists in being barred from certain occupations and having a lesser factor of safety, when we take the normal chances of injury to the one good eye into account.

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[3] Igersheimer: Das Schicksal von Patienten mit Keratitis parenchym, Samml. zwangl. Abhandl., 1913, 9, No. 4.

**Table 2.—Vision of Better Eye in Eighty Cases.**

| No. of Eyes. | Vision. |
|---|---|
| 24 | 10/10 |
| 9 | 7/10 |
| 11 | 5/10 |
| 5 | 4/10 |
| 11 | 3/10 |
| 9 | 2/10 |
| 6 | 1/10 |
| 5 | less than 1/10 |

In Table 2 the vision of the better eye in eighty cases is given. Taking the figures from the standpoint of education, Table 2 shows that twenty-four children would have the same chance as the normal child. Twenty-five more could study in the same classes with normal children, but would be handicapped, especially in choosing an occupation. Twenty, or possibly twenty-six, could be educated in defective eyesight classes, if any were available, or failing that would have to be referred to institutions for the blind, as would the remaining five. It should be noted, however, that as some of these children grow older and more intelligent, it may be possible to improve their vision somewhat more with glasses. On the other hand, it may be diminished by recurrence of the disease, or by the development of myopia, especially prone to occur in these cases. Myopia was noted in nineteen of our eighty cases, about 25 per cent. Igersheimer noted it forty-four times in 152 eyes, or 29 per cent.

**Table 3.—Igersheimer's Statistics of Vision in One Hundred and Fifty-two Eyes.**

| No. of Eyes. | Vision. |
|---|---|
| 7 | 10/10 |
| 11 | 7/10 |
| 16 | 5/10 |
| 32 | 3/10 to 4/10 |
| 24 | 2/10 to 3/10 |
| 34 | 1/10 to 2/10 |
| *28 | less than 1/10 |

For the purpose of comparison, Igersheimer's statistics of vision in 152 eyes are given (Table 3). A glance shows a considerably graver situation among these cases than do our figures. Of our 161 eyes, 42 per cent have vision of 5/10 or better; of Igersheimer's only 22 per cent. Forty per cent of his cases had vision of less than 2/10, and only 26 per cent of ours; in seventy-seven cases determined, a loss of earning power in forty-three. In any event, whether his figures or ours are nearer right, no one can deny that the disease causes a visual economic loss that deserves consideration.

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*Five of these twenty-eight were blind.

*Etiology.*—By the diagnosis "interstitial keratitis" I mean the typical cases of this disease. To quote the words of Jonathan Hutchinson, "Only typical cases of chronic diffuse keratitis must be chosen, for although the affection is unmistakable to the practiced observer in a great majority of instances, yet it has, like all other diseases, a border ground on which mistakes may be made." In my opinion, it is usually the border line cases that have caused the endless controversy as to the etiology.

In a certain small number of cases, another factor probably enters in. I refer to the coexistence of another corneal disease, usually phlyctenular keratitis. In a small number of the cases which I have observed, naturally excluded from the series on which this eye report is based, we find on the hospital records a diagnosis of the first disease, and at a later period the second diagnosis was made. We know that tuberculosis not infrequently occurs in hereditary syphilitic children, and it may not be too much to say that these children, especially the poorly nourished ones, are particularly liable to develop tuberculous lesions. I believe, therefore, that phlyctenular disease and interstitial keratitis can occur in the same person at different periods, and in making the ocular diagnosis in a doubtful case this possibility should be borne in mind.

The relation of interstitial keratitis to tuberculosis has never been definitely settled; the views of various authors differ markedly. In 107 cases Diez gave 42 per cent as tuberculous. Von Michel once stated that 40 per cent were of this nature, von Hippel[4] twenty-eight cases out of eighty, Enslin eight out of nineteen. In thirteen cases with a positive Wassermann reaction, Kummell obtained a positive general reaction to tuberculin. Elschlepp found seven similar cases. A. Leber, in eighty cases, found six surely tuberculous and four probably so. Hess is of the opinion, and to his observation we must lay great weight, that tuberculosis is a cause of interstitial keratitis. In a series of cases examined with tuberculin injections for diagnosis, he found several which gave a focal reaction in the eye. Clausen[5] has observed a similar case. The last named writer, after considering carefully the evidence, concludes that 90 per cent of interstitial keratitis is due to syphilis, and that tuberculosis is the next most important cause, and that in a number of these cases both diseases are present, but that generally in such cases syphilis plays the important part in the production of the eye disease.

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[4] Von Hippel: Arch. f. Ophth., 42, 194.

To quote Jonathan Hutchinson again:

"I will not make so sweeping an assertion as that interstitial keratitis never occurs except in people of inherited taint, yet I cannot conceal from myself, and have no wish to do so from my reader, that such is my present belief."

Igersheimer, who perhaps has devoted as much attention to this disease as has any other ophthalmologist, came in 1913 to the same conclusion to which Hutchinson subscribed in 1858. And on the basis of the large series of cases which forms the groundwork of this communication, I am inclined to the same view, with the reservation that, in the light of our present knowledge, we must admit a small number of cases of the disease may be of other than a syphilitic origin.

*Recurrences.*—It is my belief that recurrences are considerably more frequent than existing figures show. Some ophthalmologists have held that recurrences seldom occur (Silex, Nimier-Despagnet), others that they occur sometimes (Fuchs, Vossius, Hosch), and Arlt and Gutmann that they are frequent. In a carefully followed series of sixteen cases, von Hippel found five with recurrence, 31 per cent. In eighty-seven cases, many of which were observed only a short period of time, he found but 17 per cent, as did Jakolewa, Brejski in 18 per cent and Stephenson in 22 per cent.

In thirty-seven cases in which I have carefully gone into the question of recurrences, I have found positive evidence in fourteen (38 per cent), and in three more recurrence was probable.

Will the treatment of hereditary syphilitic children in their early years prevent the development later of an interstitial keratitis?

*Hochsinger's Experience.*—Sixty-three cases of undoubtedly congenital syphilitic children were followed by Hochsinger and Kassowitz from four to twenty years; of these, twenty-two were followed carefully for eight years, after they had been treated energetically with mercury in very early life. Among this group there was not a single case of interstitial keratitis, deafness or hutchinsonian teeth.

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[5] Clausen: Arch. f. Ophth., 83, 399.

The following cases occurred in my practice:

Case 1.—D. M., a boy with undoubted signs of hereditary syphilis, developed a paralysis of the third nerve of the right eye in the early months of life. As far as could be ascertained, his treatment up to the age of 4 consisted largely in the use of the iodide combined with inunctions. At 4 years of age he developed in this eye an interstitial keratitis of moderate intensity, which lasted for about five months. At this time he came under the care of practitioners thoroughly qualified in the handling of syphilitics, and was given thorough treatment with mercury over the succeeding four years. In 1908, then at the age of 7, and three years after the involvement of the right eye, he developed a mild interstitial keratitis in the left eye, which ran its course in about ten weeks and cleared up almost completely. Seven years later, in 1915, the vision in the left eye with a minus cylinder was 10/10—, the cornea showed a slight opacity, and a number of vessels in the cornea were to be seen.

Case 2.—G. V., boy, developed unmistakable active signs of hereditary syphilis soon after birth, and was given continued treatment with inunctions twice a day for two years and with mercury and chalk for a year more by his doctor. At the age of 9 months, he developed in one eye a uveitis with a small hypopyon. The ocular disease cleared up within a year, but general treatment was continued. Four years later he developed an interstitial keratitis of both eyes, of moderate intensity.

While cases like these are discouraging, I believe that they should in no way deter us from the energetic and long continued treatment of hereditary syphilitic children. Although we cannot, in the light of our present knowledge, influence markedly in many cases the course of the ocular inflammation, nor can we prevent the involvement of the second eye, yet we can and do produce improvement in the general condition and often in the mentality of our patients. It is well known that a positive Wassermann reaction is unusually persistent in these cases, but by adequate treatment of sufficiently long duration it can be made to disappear. Recurrence of the eye disease and other complications are certainly much less likely to occur, and if they occur at all, without the presence of active disease as evidenced by the Wassermann reaction.[6]

In conclusion, a quotation from Igersheimer may not be out of place:

"In the interest of the later career of patients with interstitial keratitis it is important to administer antisyphilitic treatment with the greatest energy, not only during the course of the ocular disease, but afterward from time to time as long as the Wassermann reaction is positive.

## NOTICE.

Owing to the fact that the Ophthalmic Record has been merged into the (New) *American Journal of Ophthalmology,* it will be impossible soon after the end of the year 1917 to obtain copies of the Record.

There are at this time only three full sets of the Ophthalmic Record on the market. The Publisher will sell them for the sum of $160.00 a set, provided the purchase is made before March, 1918.

Volume 2 is out of print; and there is only one full volume of Volume 1, on the market outside the three full sets.

Full volumes of each year, except the second, can be had singly at,

$10.00 for Nos. 1, 3, 4, 5;
7.00 for Nos. 6 to 21 inclusive;
4.50 for Nos. 22 to 26 inclusive,

if the purchase is made before March, 1918. Single copies of the first five years' issue can be had for 75 cents each; 50 cents each for all other years as long as they last.

Owing to the lack of storage space it will be not possible to make this offer good after March, 1918.

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[6] The literature up to 1911 will be found in the exhaustive articles of von Hippel, Hoor and Clausen, which have been freely used. Other communications referred to are:

Axenfeld: Ber. d. Ophth. Gesellsch., 1913, p. 261.

Wickerkiewitz: Ber. d. ophth. Gesellsch., 1913, p. 262.

# REPORTS OF SOCIETIES

## CHICAGO OPHTHALMOLOGICAL SOCIETY.

DR. FRANCIS LANE, PRESIDING.

MAY 21ST, 1917. (Concluded)

The case which he reported was operated upon by this method. About six months previous to his seeing the patient he was burned by hot metal. The eye was destroyed as well as parts of the edges of both the upper and lower lids. The eye was eviscerated by the attending physician and when healed there was total symblepharon with a fissure where the palpebral opening existed. The mucous membrane was entirely destroyed.

With such an extensive surface the question of manipulating the large grafts necessary to cover the wound, brought forward the idea to suture the grafts to the plate. A plate of block tin a little larger than a normal conjunctival sac and curved to fit the same was made. A double row of holes was bored through the center in the longer diameter, so it would only be necessary to cut a graft large enough to cover one-half of the plate, and each graft could be sutured on separately. Commercial paraffin was used to coat the plate, care being taken to clean each hole of the paraffin.

After the grafts were cut from the arm, they were sutured to the plate with the raw side out and the sutures tied on the convex surface. The plate with the grafts attached was now placed in the warm normal salt solution.

In preparing the socket, the lids were first dissected free from the shrunken globe for about one-eighth of an inch, and an anchor suture passed through the globe to be used to draw the stump in different directions while dissecting off the lids. The lid dissection was performed with a Beard lid knife, to the extreme limit of a normal superior cul-de-sac, and to the orbital edge inferiorly. After the dissection the orbital edge should be felt sharp and distinct. After the wound was dry, the plate with the grafts was slipped into place, and allowed to remain free. Both eyes were now bandaged and the patient kept in bed. On the second day the bandage was removed from the operated side, and an instrument passed between the edges of the lids, and the secretion was removed. Thirty-five per cent argyrol was now instilled. He had prevented partial symblepharon in fresh burns in the eye by the instillation of 35 per cent argyrol, after separating the raw surfaces. The coagulation and deposit kept the surfaces from growing together. This line of treatment was continued for six days, at which time the sutures used to hold the grafts to the plate were removed, leaving the plate free and the grafts adherent to the new socket. The bandage was now removed from the well eye and the patient allowed to go home and report to the office for treatment.

The holes in the plate allowed the cavity to be flushed. At the end of 20 days the plate was removed, small granulation points were nipped off and a smaller prothesis of block tin was introduced. The cavity continued to shrink, and at the time the case was presented to the Society, October 16th, 1916, the prothesis worn was about one-half the size of the original operative prothesis, and the cavity was entirely lined by epithelium. The case was presented for advice in reference to the use of foreskin in deepening the shrunken superior and inferior cul-de-sac. Dr. Suker at that time advised against the use of foreskin because of its future shrinkage, but later at the Academy meeting in Memphis, recommended its use for these cases.

In the second operation to deepen the superior and inferior fornix, half moon plates were used with a row of holes at the palpebral edge through which to suture the grafts, while in the edge of the plates opposite the sutures holes were placed two holes for anchor sutures.

The Weeks operation for the restoration of the inferior cul-de-sac was peformed. In operating on the superior cul-de-sac the anchor sutures were brought out at the superior edge of the orbit, and tied over a roll of gauze. The technic of placing the grafts was the same as in the first operation, except that grafts were sutured to the enlarged external and internal canthi. The results which were seen in the picture submitted, were obtained by these two operations.

The author considered there were two mistakes in the first operation, first, the grafts were made a little too small, and second, the external and internal canthi should have been covered by suturing grafts to the same. He felt confident that if these two mistakes had not been made, the socket would have been completely restored by the first operation.

*DISCUSSION.*

Dr. George F. Suker said the use of foreskin was not very applicable when one wanted to cover a large surface as it had a tendency to contract too rapidly, particularly where excessive cicatricial tissue had already been formed, and where one had to cut cicatricial tissue to get a space to be filled in with a graft. He had discarded the use of foreskin for grafting, with the exception perhaps in cases of resection of the tarsus for trachoma for the restoration of the retrotarsal fold.

He had under observation a patient who had a complete symblepharon of the upper and lower lids, and an intact eyeball, in which he succeeded in freeing the upper and lower lids, and today this man was able to recognize daylight from darkness and recognize moving objects. In this particular case he used foreskin seven or eight times, and he was still trying to get a suitable graft to further enlarge the upper cul-de-sac.

As to fixing the graft to the plate, he stated that the late Dr. Hotz employed that method constantly before he inserted the graft. The secret of successful grafting is that the graft should be fixed to the plate as well as to the receiving area by means of sutures. Second, the graft should be three or four or even six times larger than the area to be filled in. He had seen transplanted grafts half the size of his hand or even larger shrivel down to almost nothing. It is the fixing of the graft to the plate and edges of receiving area that prevents shrinking in a goodly measure.

Dr. Willis O. Nance said the case reported by Dr. Pratt was an exceedingly interesting one and the result very good. It was an operation that was devised he thought by one of the members of the Society, Dr. Harry Woodruff, about ten years ago. Dr. Woodruff did considerable work along this line at the Eye and Ear Infirmary at the time, including attaching of the graft to the plate. The speaker did the operation a number of times and remembered very well an experience he had at first in getting the graft properly sutured to the plate. It was not an easy thing always to do this. He cautioned the members of the Society against using this method in cases of partial symblepharon in which the eyeball remained in the orbit. He had seen a cornea become necrotic as the probable result of the insertion of a metal plate in the eye. Since that time he had been very careful about using this method in cases where the eyeball remained in the orbit.

Dr. Richard J. Tivnen, in speaking of the method of anchoring the graft to a tin plate, said he saw Dr. Woodruff employ this method at the Eye and Ear Infirmary. In a recent case he had the same difficulty that Dr. Pratt had from adhesions forming about the inner canthus, and he was glad to know the use of argyrol prevented the formation of these adhesions. Shrinkage could be prevented by inserting a block tin plate and keeping it there for a certain length of time so that things became adjusted more or less permanently.

It was difficult to get a graft large enough; it should be very much larger than the area one was going to cover. Proper anchorage of the graft was the vital thing. Sometimes the speaker had taken the graft for the upper cul-de-sac and inserted a suture in the apex or bottom, and in addition put in a block tin plate. A difficulty had been in getting the surfaces apart at the inner and external canthi.

Dr. Thomas Faith thought the method described by Dr. Pratt of anchoring the graft was a little different from that usually employed. If he understood him rightly, he anchored not only the graft but the plate up in the cul-de-sac. Most operators attached them to the edge of the lid, keeping them in that position, and allowed the plate to hold itself in the cul-de-sac by being fastened to the lid. He had seen a number of cases in which the plate had been gradually pushed out before one was ready to take it out. The scheme of anchoring the graft to the plate and all would obviate that.

Dr. Francis Lane said a point was brought out in the preparation of the Thiersch graft that the vascularized tips of the papillæ of the skin should be left intact when laid on a dry surface. With slight oozing of serum, the capillaries very rapidly grew from the prepared surface into the vascularized tips and minimized the shrinking process which took place after the graft was put in place.

### Glaucoma and Autointoxication.

Dr. Clark W. Hawley presented for consideration a report of four cases of glaucoma that had been under his care for the past year. In these cases his results had been so superior to any that he had been able to get before, he felt justified in bringing them to the attention of the society.

A year ago he received a call to see a patient in a neighboring village who was said to be suffering from iritis. The patient was a lady, who, at the breakfast table, found that she could not recognize her friends about her. He found her in bed with all the symptoms of acute glaucoma. She had nausea, loss of vision in the left eye, increased tension and a dilated pupil. She had diagnosed her own case as one of iritis, as the symptoms were similar to an attack she had a year or so before. A Chicago oculist advised the use of atropin. Patient had lost the right eye some time before, as an iridectomy had been done, but without result favorable to vision. He at once prescribed for her, and in getting a more complete history of the case he was in some way impressed with the idea that she was suffering from an extreme case of autointoxication, suspecting the source to be the lower bowel. He gave his usual instructions to be followed in such cases, not waiting for the urinal test, which was carried out later on and confirmed his suspicions fully. Patient improved so rapidly, much more so than any case he had had under miotics, that he was surprised and wondered how much the auto-infection had to do with it. As soon as the patient was able to come to his office, he found vision 20/80 in this eye, a very little in the other or lost eye. In a very short time vision was 20/40 and came on rapidly to 20/20, and the near also became normal. The patient, after a year of treatment, considered herself cured. The treatment for the autointoxication was still continued as it was impossible to cure a case of this kind of infection in a short time. The bowel would take on a normal condition only after months on a very restricted diet and bowel flushings. Not enough time, he thought, had elapsed to make a positive statement, but of this fact he was sure, that in his twenty-five years of eye work he had not had such results as in this and the other three cases, so that he was justified in at least thinking very seriously of autointoxication as having something to do with the cause of glaucoma. He was led to this idea of his experience with a number of cases of irido-cyclitis and chronic cyclitis which he published two or three years ago.

Lastly, he stated that he absolutely would refuse to look after any patient who refused to follow his instructions absolutely, and it was only under this strict regimen that results could be accomplished

### *DISCUSSION.*

Dr. J. A. Pratt, Aurora, reported a case due to infection outside of the bowel, showing that a patient may have glaucoma caused by infection. This patient was a man who lost one eye about 16 years ago, and 8 years thereafter he began to have attacks of iritis in the other eye a number of months apart. These attacks gradually became worse until he developed irido-cyclitis and later, after having had them for two or three years, off and on, he had an attack of glaucoma. Iridectomy was performed. Before this the patient had his tonsils removed. The Wassermann and other tests were made with negative results. His bowels were looked after. He was not allowed to eat meat; he was not allowed to smoke; he stopped drinking, and each one of the attacks cleared up under Turkish baths and large doses of sodium salicylates, with eserin. The attacks continued after the iridectomy. Patient went for nearly a year without an attack, then he had two or three slight attacks. His teeth were X-rayed and trouble was found with a left central incisor, although it was the right eye that was affected. This tooth was extracted when he had an acute glaucomatous condition, which was controlled by eserin, and it was found that half of the root of this tooth had been absorbed. As soon as the tooth was extracted the patient was taken off of eserin. The second day thereafter his symptoms disappeared, and for the last six months he had not had any trouble. It looked to the speaker as if the trouble in this case originated from an abscess in the central incisor.

Dr. Von Der Heydt said that while hygienic measures were essential in the class of cases reported by Dr. Hawley, and a vegetarian diet could be advised, as advocated, he thought it was a therapeutic error to lay so much stress on these things and to exclude miotics in inflammatory glaucoma as had been done in one of the cases reported. He thought miotics were still the remedies par excellence.

Dr. Willis O. Nance said there was no doubt but what autointoxication figured to quite an extent in the causation of many eye diseases. He remembered that several years ago, when de Schweinitz first called attention to autointoxication in the causation of cases of iritis, he made it a point to go into the etiological factors of many eye diseases in relation to this condition but was disappointed in the results. Recently, if he was not mistaken, de Schweinitz had backed down somewhat from his, at first, very enthusiastic idea of autointoxication as the cause of many eye diseases. He did not think Dr. Hawley would treat cases of acute glaucoma simply along the line of flushing out of bowel and the abolition of a meat diet. He certainly would do iridectomy just the same in cases of acute glaucoma because a delay of 24 hours in some of these cases meant destruction of the eye sight, yet the idea advocated was a good one on general principles. Most of the cases of glaucoma occurred in middle aged or elderly people, and the abstinence from a meat diet, with bowel flushings on general principles, was excellent treatment, but he did not believe the essayist would rely on this alone.

Dr. Thomas Faith stated that evidence was gradually accumulating that some form of chronic intoxication was responsible for glaucoma. He knew of two instances in which glaucoma had been relieved by getting rid of a focal infection.

Dr. Hawley, in closing, said the object of his paper was not to bring out especially the fact that glaucoma was due entirely to infection from the bowel. That was only one source of infection, but that a large proportion of cases of glaucoma were due to infection somewhere. The speaker, would not rely solely on treating these cases of glaucoma by bowel flushings. Miotics and other measures of treatment should be carried out as adjuncts. He ventured the assertion that 90 per cent of practitioners did not know how to treat autointoxication. He knew of case after case where practitioners had absolutely failed to treat autointoxication successfully simply because they did not know how and because they did not insist on patients doing as they ought to do.

Dr. Harry S. Gradle asked Dr. Hawley whether he had eliminated the possibility of a cyclitis precipitate on the posterior cornea, to which Dr. Hawley replied that he had not.

At the request of Dr. Nance, Dr. Hawley then detailed the instructions he gave these patients in addition to the bowel flushings.

### A Case of Chronic Conjunctivitis (Plasma Cellularis).

Dr. Harry S. Gradle, in reporting this case for Dr. Bailey, stated that the patient was seen last year both by Dr. Suker and himself and pronounced plasma cellularis. A small piece of tissue was removed, a section made and examined. The case histologically, was undoubtedly an instance of clinically atypical vernal catarrh. A blood count taken today showed eosinophilia slightly over 5 per cent. A smear taken from the conjunctival secretions showed no organisms, but an enormous number of eosinophils in the secretion. If this had been done previously they would not have thought it was a case of plasma cellularis.

In the conjunctiva plasma cellularis was found. The blood picture showed leukocytosis. There might or might not be some plasma and mast cells, but there was a marked increase in the small mononuclear leukocytes, up to as high as 40 per cent.

The first of these cases was reported by Pascheff in 1908. Since then nine others had appeared in the literature. By some authors these cases of chronic conjunctivitis or plasma cellularis were regarded as a local manifestation of systemic infection, because in some of the cases reported there was febrile disturbance accompanying it; whereas other authors regarded the disease as a local affair. The speaker was inclined to believe it was a local disease affecting the conjunctiva and its hematopoietic function. Treatment was not of much value. One case is reported by Elschnig as having been cured by the total excision of conjunctiva. In fact, in this case the local blood picture returned to normal, and the cicatrical or scar tissue that replaced the conjunctiva was no longer of the inflammatory type previously seen. According to the last reports of the patient he saw last year, the condition was unchanged. The boy had had the disease for four years before the speaker saw him, and probably it would continue for some little time. Dr. Lane, who made the histological examination, could tell the society more about the microscopic picture.

Dr. Francis Lane said he reported the microscopic findings in Dr. Gradle's case 18 months ago, but the findings in this case were different. The epithelium showed in places slight keratitis such as one would find on the papillæ of the tarsal conjunctiva. The case showed mucoid degeneration at the border of the knobs. One thing noticed in particular was an overdevelopment of the connective tissue of the substantia propria. He could not make out any hyalin degeneration because all connective tissue took practically the same uniform eosin stain. There were a few plasma cells but no more than in the chronic forms of conjunctivitis.

One thing of interest about both of these cases was that it brought up the point of origin of the plasma cells. No cells in the conjunctiva had been discussed more than the plasma cells. But one investigator expressed the opinion that they were often of connective tissue origin. Later investigators, however, were of the opinion that they probably originated from the endothelial cells, such as the small or large round cell. There was very little proliferation or accumulation of small round cells of inflammation. The particular finding was an overdevelopment of connective tissue of the subepithelial structure. Many eosinophils were found in the tissue itself. This was the first thing he noticed in particular.

### Tension in Normal Eyes Before and After Tonsillectomy.

Dr. A. M. Carr stated that these observations on normal eye tension before and after tonsillectomy have been recorded in order to establish the effect that the hemorrhage, anesthesia, and shock, which accompanied that operation, as well as the removal of a focus of infection, have upon normal intraocular tension.

In a number of cases of iritis with secondary glaucoma observed at the Cook County Hospital it was noted that accompanying the improvement of the iritis, following tonsillectomy there was a marked lowering of intraocular tension. This decrease in tension occurred within 24 hours after the removal of the tonsils and was permanent. There was satisfactory evidence to show that the reduction of tension was due to the improvement of the iritis dependent upon the removal of the tonsillar focus of infection as the tension remained unchanged in the eyes in which there was no iritis; nevertheless it was thought advisable to study the effect of the above factors in normal eyes.

The material consisted of 100 cases of tonsillectomy in which there was no history of eye trouble. None but very controllable patients were used. Their ages ranged from 14 to 67 years. Pus could be expressed from the tonsil in practically every case. About two-thirds of the cases were operated under local anesthesia and the remainder with ether.

The Schiötz tonometer was used throughout and the eyes were anesthetized with holocain. The tension was taken first a few hours before the operation and then 24 hours after the operation.

No variation greater than 3 mm. was noted in 95 per cent of the cases. This degree of variation was of no significance as all observers agreed that it was within the range of normal error and should be properly ascribed to the limitations of present day tonometry. In no case was there a variation of 5 mm. in the reading before and after the tonsillectomy.

Two cases had secondary hemorrhage with considerable degree of exsanguination. No difference was noted between the local and general anesthetic cases.

The average tension of the 100 cases was 17¼ mm.; the lowest tension was 10 mm.; the highest tension 26 mm.

He therefore felt justified in concluding that in this series of cases tonsillectomy, even when accompanied with considerable hemorrhage, had no effect upon normal intraocular tension.

MAJOR H. WORTHINGTON,
Secretary-Treasurer.

## PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

FEBRUARY 15, 1917

WILLIAM T. SHOEMAKER, M. D., Chairman

### The Result of a Plastic Operation for Cicatrical Ectropion.

Dr. P. N. K. Schwenk showed a case of cicatrical ectropion. The outer half of the upper lid and outer canthus were drawn up and out, exposing the outer half of the globe and tarsal conjunctiva. One year ago the patient fell down a stairway, lacerating the left brow, and the consequent eversion has been a constant annoyance.

The first step in the operation was to loosen the margin of the lid from the brow and determine the size of flap necessary to cover the denuded area. The flap should be made about one-third larger than the exposed area, as they invariably shrink. He made a flap directly out from the canthus allowed for lowering and replacing canthus in normal place. After the lid flap with a pedicle was placed in position the denuded place from which flap was taken was covered by undermining the skin all around it and uniting the edges with sutures. This left a small triangle of raw surface which he covered by taking a triangular flap from just below the outer canthus and placing it in the exposed triangle to prevent the canthus from being dragged out of its normal position. The last exposed patch was readily covered by two sutures.

He applied a bichloride vaselin compress as a dressing. Dr. Schwenk did not disturb this dressing for three or four days, as there was some danger of disturbing the flaps.

Dr. Burton Chance said that he would like to call attention to the importance of Dr. Schwenk's precaution in the matter of infrequent dressings after plastic operations. He has noted in his long association with Dr. Schwenk, whose experience in the relief of deformities by plastic measures has been remarkably extensive, that cases did best when undisturbed for several days after operation. In this connection he was reminded of the beneficial effects following the employment of a steady but moderate degree of heat, such as that obtained by the use of a so-called Japanese hand-warmer, consisting of a small tin box into which a lighted paper fuse is placed, which slowly undergoes combustion for several hours.

### Cavernous Angioma of the Orbit

Dr. Burton Chance presented what he believed to be a case of cavernous angioma of the orbit. The patient was a well-developed girl, aged sixteen years. In her left eye there was noticed, in the first week after birth, a soft placenta-like mass which gradually enlarged until it occupied the upper half of the orbit. It lay between the conjunctiva and the capsule, covering the upper half of the globe. The conjunctiva seemed to be healthy and normal, the mass having a more or less fibrous capsule. The eye, from the pressure of the mass, was rotated inwardly and downward, but when relieved of the pressure it could be rotated in all other directions. The mass extended far forward into the tarsus, in which there did seem to be a normal cartilage. The orbital ridge was deficient in the middle third, and the roof, by digital examination, seemed to be wanting. There also was incompleteness of the external orbital plate, so that at times the mass could be felt prominently in the temple region. At the time of the first examination the mass was quite concealed by the drooping lid.

In the course of years the patient had experienced no pain or tenderness, but only the deformity. The mass had not altered, temporarily, at physiological periods, but has protruded during emotional excitement, and when she stoops, as during household occupations it protrudes or rather prolapses far out between the fissures, and always when reclining; greater protrusion occurs when the nose is blown violently. All these changes can still be manifested. One series of measurements shows the mass to have protruded 55 mm. in circumference, 40 mm. horizontally, 30 mm. anteroposteriorly, and 16 mm. vertically.

By digital examination it seems to be entirely fluid. There is no such sensation as is presented in varices. There are no pulsations or bruit. The mass could be pressed back so that the eye could be rotated fairly toward the median line, affording opportunity to view the fundus, which is, except for distinct astigmatism, healthy.

Five days ago the mass was aspirated and four syringefuls, amounting to 20 c.c., of chocolate-red blood was withdrawn. By accident, however, counter-puncture was made and air entered the sac. A roller bandage was applied and pressure maintained for three days, but on the removal of it the mass was found protruding from the fissure and did not spontaneously retract as heretofore; and, on palpation, the sensation was as though clotting had occurred. Roentgenograms show no connections with the frontal, maxillary or sphenoid sinuses. Dr. Chance is of the opinion that the case is one of circumscribed cavernous angioma, and he intends to undertake the dissection of it, expecting to find a capsule sufficiently fibrous to favor such an operation.

Dr. William Zentmayer said that the case was similar in its nature to intermittent pulsating exophthalmos, the difference consisting merely in the position of the varix. (This case belongs to the second group of Scheffel's classification of cases of intermittent exophthalmos.) The condition of the bony orbit, he thought, was due to malformation rather than to erosion.

### Nodular Degeneration of the Cornea.

Dr. Burton Chance exhibited a case of nodular degeneration of the cornea in a negro woman, aged about sixty-five years. The history is most uncertain. The patient's attention was first drawn to her eyes after receiving a blow upon the sight while chopping wood, some time in the past twenty years. Her condition at the time, she said, required the attention of the "doctor," who gave her rather strong medicines, one being "iodin," or "the iodide," following the course of which all her hair fell out, so that she now wears a wig.

At first glance one is inclined to regard the case as one of blue irides in a negro, with a large dense leukoma in the right eye; but, on closer inspection, it can be seen that the corneas are pervaded by a hyaline granular sheet beneath the superficial layers. The surface of each cornea is smooth and sheds staining fluids. The granules are quite dense at the periphery, but fade as the summit of the cornea is approached, so that the papillary spaces are comparatively transparent. The outer zone of each cornea is clear. In the lower temporal quadrant of the right is a more or less triangular pearly area; it is densely opaque, with a crystalline iridescence. Near to it bloodvessels run across the limbus superficially, but because there is no vascularity elsewhere in either eye it is presumed that the injury spoken of occurred here. The woman is quite able to go about alone, but her vision is so much obscured that she can no longer serve efficiently as a cook.

Solutions of atropin effect wide dilatation of the pupils, through which the fundi can be illuminated, in neither of which are there any gross shadows or reflecting areas; her light perception in each eye therefore is good in all fields, and it is presumed that the fundi are healthy. The woman has three children, a son, aged thirty-nine years, who accompanied her to the hospital, has a broad and complete arcus encircling each cornea, the substance of which arcus is identical in appearance with the substance of the plaques in his mother's corneas.

The presence of this case at his clinic reminds Dr. Chance of the somewhat similar cases he reported as having occurred in a man and his son in 1913, but the present instance is singularly different from those and from others within his knowledge, insofar as the centers of the plaques are clearer than the outer portions. In the father of the first group crystalline areas were noted, which sparkled in the manner of the sparkling of the large area presented in the woman shown tonight.

The woman has come under his observation so recently that Dr. Chance is not ready to report on the probable cause nor to outline a course of treatment. In the case of the young man previously reported, iridectomies gave greater illumination, so that he has been able to go around alone safely, even to the taking of long journeys, he having visited Dr. Chance at his office unaccompanied. It is likely, therefore, that iridectomy might be serviceable in the case under observation.

Dr. William Zentmayer said that an important point in the classification of this case is the family history. If the case is one of nodular keratitis it will probably be found to be hereditary.

### Hole at the Macula.

Dr. Burton Chance exhibited, because of its general interest, a case of "hole at the macula," following a contusion of the globe in a dynamite explosion in September, 1916, after which the sight was totally annihilated. When first seen by Dr.

Chance three months later there were a number of hemorrhagic areas together with diffuse edema of the retina which have become absorbed, and below the "hole," at about two diameters' distance is an almost circular darkly pigmented area. The presence of these two spots recalled to his memory a case of "unusual atrophy of the choroid," which he had reported in 1913, in which two circular holes were found to the temporal side of the disk. The "holes" in that case were not much unlike in appearance "holes at the macula," especially such as is shown in the case under discussion, a water-color sketch of which he had had made by Miss Washington. This sketch is the last which that accomplished, and now lamented, artist had made, which was delivered to him the day before her fatal illness.

### Heishrath-Kuhnt Operation.

Dr. William Zentmayer exhibited a case of trachoma upon which the Heisbrath-Kuhnt operation had been made some weeks previously. The improvement in the patient's condition has been very marked. The cosmetic result is also good, as the palpebral fissures are of even width.

### A Case of Sarcoma of the Orbit.

Dr. William Zentmayer presented the following case: S. S., female. First seen at Wills Eye Hospital January 20, 1917. First noticed growth in upper lid three years ago. It had slowly, progressively, and painlessly increased in size. R. E., 6/6 L. E., 6/15.

In the orbital fold of the upper lid of the L. E. extending from a point a little to the inner side of the middle line to the outer angle there was an oval tumor measuring approximately 40x25 mm. The surface of the growth was uneven, but could scarcely be termed lobulated. The mass was outside of the orbital cavity, except at the outer end, where the pole was turned inward behind the orbital margin. It was movable except at its outer extremity, and was unattached to either the skin of the upper lid or to the conjunctiva. The palpebral conjunctiva was congested and granular, and presented a small yellowish area in the position of the growth. An incision was made into this spot, and on withdrawal of the blade a small friable granular mass protruded.

Under ether an incision was made through the overlying tissues the length of the mass, and the growth was enucleated. This was accomplished with comparative ease, as the tumor was encapsulated. Three fine catgut sutures were used to close the opening in the orbital septum, and a like number of silk sutures to unite the skin incision. Later there was a somewhat indrawn, scarcely visible cicatrix corresponding to the normal fold of the sulcus together with a slight drooping of the lid.

Dr. Brinkerhoff, the pathologist to the hospital, gave the following report: The specimen consisted of an irregular mass of tissue measuring 35 x 22 x 18 mm. in its chief diameters. The external surface was smooth. Attached to the posterior surface there were some muscle fibers and fat. On cut section the surface was soft and friable and had the appearance of chicken fat. Microscopically the specimen consisted in the main of a frail connective-tissue framework, supporting, in some instances large, in other instances smaller, masses of sarcoma cells. Besides the connective-tissue framework there was carried along a moderate blood supply, in the shape of imperfectly formed bloodvessels. The sarcomatous tissue predominated. The diagnosis was " a large round-cell sarcoma."

### Traumatic Notch in the Lens

Dr. William Zentmayer presented a case of traumatic notch in the lens. The patient was a girl, aged fourteen years. Seven years ago she had been struck in the right eye by a baseball, and since then has seen but little with this eye. V. = l. p. The lens was subluxated and presented at the inferior portion of the equator two shallow notches separated by a teat-like projection of the lens substance. Suspensory ligament fibers can be made out only at the latter point. Dr. Zentmayer thought that Dr. Crampton's suggestion that the notches were due to the updrawings of the lens capsule at these points, the capsule being held in its normal position at the location of the teat by the zonule fibers, was probably correct.

There were extensive pigment changes in the choroid and retina, probably the result of hemorrhage at the time of the accident.

### Contusion of the Eye with Rupture Extending Across the Optic Nerve.

Dr. Edward A. Shumway reported a case of contusion of the eye, with rupture extending across the optic disk. The patient, a child, aged eight years, was struck in the left eye by a stone thrown by a playmate. Following the blow he vomited several times and was dazed for some hours. There was no wound of the eyelids or eyeball, but hemorrhage into the anterior chamber and vitreous obscured the iris and fundus.

Vision was reduced to the perception of hand movements on the temporal side below. Later an iridodialysis was found at the lower border of the iris, and when the vitreous cleared up, in the course of four months, a tear was discovered extending across the lower third of the optic nerve. At this position there was a depression, over which ran a band of newly formed connective tissue. The retinal bloodvessels were interrupted at the disk margin, and there was a broad area of atrophy of the choroid bordering the tear, and much superficial disturbance of the retina beyond.

Rupture of the optic nerve in its orbital course, and also partial or complete avulsion of the nerve from the sclera. at the level of the lamina cribrosa, are not uncommon where the orbit has been penetrated by a foreign body. But there are only three cases on record, where a tear across the nerve has occurred from contusion without penetration, the usual rupture being in the choroid. In each case the tear has been at the lower border of the nerve, and Dr. Shumway thought that the blow produces a sudden violent rotation upward of the eyeball and thus causes a separation of the nerve from its scleral attachment.

Dr. P. N. K. Schwenk referred to a case of an engineer who was struck in the right eye by an owl while driving his locomotive. He suffered a ruptured choroid, and central vision was destroyed.

### Thrombosis of the Superior Branch of the Retinal Vein.

Dr. Frederick Krauss reported a case of thrombosis of the superior retinal vein in a woman, aged forty-eight years, suffering from high blood-pressure and a latent syphilis. The history indicated an ocular lesion nearly one year old. The most interesting detail was a replacement of the thrombosed section by innumerable fine corkscrew-like vessels surrounding the opaque areas in the retina and an enormous dilatation of a macular vein. This collateral circulation probably explains the almost perfect field for white, colors, and good central vision.

### Instrument for Demonstrating The Elementary Principles of Refraction.

Dr. T. B. Holloway demonstrated an instrument that had been of considerable service for the teaching of the elementary principles of refraction. It was not only of service in the demonstration of various refractive errors, but was likewise of service in teaching the combination of lenses. With the same instrument the angle gamma and alpha could be readily demonstrated, and with but slight modifications it could also be utilized for the demonstration of images formed by mirrors and by lenses. J. MILTON GRISCOM, M. D. Clerk.

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## COLORADO OPHTHALMOLOGICAL SOCIETY

F. E. WALLACE, M. D., PRESIDING.

PUEBLO, COLO., MAY 19, 1917.

### Operation for Trichiasis, Dr. J. J. Pattee.

C. H. W., age 58, carpenter. Health normal. Consulted me April 12, 1917. Trachoma of twenty years' duration. The right tarsal conjunctiva much contracted by scars but at present has areas of thickened active tissue, due to recrudescence. There is much opacity in the lower half of the cornea and marked vascularization of the upper portion. There are some old scars due to ulcers.

The free border of the lids turns in, directing the cilia backward, i. e., a condition of entropion.

The left eye similar to right except that the changes are less in extent and degree.

The Hotz-Anagnostakis operation was performed ten days ago. Besides the regular operation, I split the lid margin and placed in the intermarginal groove, a skin graft from behind the ear. The few remaining cilia are now directed away from the cornea, the wounds are nicely united with almost no scars and the grafts are successful.

Dr. F. E. Wallace reported the following cases:

### Traumatic Cataract.

A. C., age 9, had made a little dart by taking a match to which a pin was tied and to which a piece of paper was fastened in a slit at the other end. This became fastened in the ceiling. His cap was the handiest thing to throw at it. It was loosened, and in falling struck the cornea of the left eye in its center, penetrating into the anterior chamber far enough to make a scratch into and through the anterior capsule. I saw him 24 hours following. A pin hole sized opacity was found in the cornea; a general milkiness of lens present in pupillary area; saw a hand but could not count fingers; no pain present. Progressed favorably by treatment and in 90 days lens was all absorbed.

### Traumatic Cataract.

E. E., age 7, was pounding a stone with a hammer, when a small piece struck right eye. There was so little pain that nothing serious was thought of it. Swelling and a blue spot on lid the next day caused a visit to my office. There was a slight opacity of lens, but no general congestion of eye. I could discover no wound of cornea. A break was seen in the capsule, however, and in a day of two flocculent material in very small amounts was seen in anterior chamber. There was no pain and no general reaction of the eye. Opaque lens substance was protruding through capsule wound. It progressed so slowly that I did a needling twenty days following injury. Case made an uninterrupted recovery. A hair line scar 3 mm. long was discovered some ten days following receipt of injury. No doubt this was seat of origional trauma. The interesting features are: So little reaction and wound not being discoverable until scar was formed.

### Retinitis Proliferans.

C. T., age 26 years. About four years ago left vision became impaired. Has become worse since. Gives history of foot-ball injury to head some years ago.

Has diplopia. Outward squint very noticeable.

Media very hazy. Retinal changes very extensive.

Running from 10 to 15 mm. above and to inside of disc, downward, a crooked, ragged edge, whitish streak 5 to 10 mm. wide. Obliteration of blood vessels in this area.

The posterior fundus of blue white color at places with white streaks running up along blood vessels. Other portion white covered with pinkish film appearance, general aspect mottled and hard to outline. At certain points blood vessels make entrance surrounded by a white ring fading off into a pink white. Peripheral vessels made out rather mistily, small caliber. Upper and inner field a few black formations, spots of white glimmering nature. Disc indistinguishable. Arteries and veins very much reduced in shape some being obliterated. Proliferation of vessels at places. Some spots look like small white feather is attached, pointing toward periphery.

Right eye. A small spot to nasal side of disc, oblong up and down, a little longer than disc but about half as wide.

Left vision; direct, moving hand, indirect, counts fingers.

### Choroiditis.

J. C., age 20. Noticed interference with vision four years ago. R. V. 7/10. L. V. 20/15.

Thinks it is not progressing so far as vision is concerned.

Right eye. Temporal field involved from disc outward.

Left eye. Superior and superior temporal field is diseased. Extreme superior patch of white very large and looks as if enameled or like piece of china.

One very interesting thing is the presence of a vitreous string between disc and fovea, several mm. long.

**Symblepharon.**

J. T., age 12 years. Seven years ago mortar was thrown into eye from third story of building. Workmen immediately washed eye out with water. Within half hour he was in the office of an oculist who found few particles still in eye. In spite of classic treatment, extensive symblepharon formed.

Formation involves the inner half of the lower cul-de-sac, graduated in width up and out and extends to and involves four-fifths of pupillary area. The growth is thought to be progressive and involving more of the pupillary area than three or four years ago.

*DISCUSSION.*

Dr. Jackson suggested dividing the adhesions, making a conjunctival flap and bringing the edges together with sutures.

Dr. Bane uses a broad dissection with bringing down the good conjunctiva.

**Specific Choroiditis.**

J. V., age 25 years. Noticed vision began to fail last August. Left eye became worse gradually, until three months ago, when the process increased.

L. V. Count fingers at 12 feet. Wassermann plus 4.

Fundus. Very extensive changes in all stages of the disease. Temporal field almost wholly involved, far up and far down. Nasal field and superior not so many points. Can see jet black and ivory white spots various sizes. At places pearly, shiny pin head size spots. Across the superior field a very dim, almost indistinguishable line is seen. Looks like a blood vessel but can see no junction with other vessels and lies in front of and at right angles to the arteries and veins. Probably 2 mm. wide and side outline more distinct, of pinkish white color and fades to an indistinguishable outline of other side.

**Trachoma.**

This case is interesting from the fact that it will not quiet down. Began nine or ten years ago in both eyes. Right eye is now quiet except that trichiasis being present, it will become inflamed occasionally. The left eye, however, takes on an intense exacerbation frequently. Pannus will persistantly make headway. Following treatments with sulphate of copper in glycerine, eye quieted for few months, then flared up. I did tooth brush grattage to try to eliminate any diseased tissue which might remain. In a few months another flare-up. I did a simple peritomy. Quiet for few months. I did a second peritomy with resection of one-fourth inch of conjunctival strip the whole circumference of cornea. The benefits lasted only a few months. Jequirity was tried but could not get up any but a mild irritation with preparation I had made from fresh bean. I can only get results of temporary character with any form of treatment I may choose. I have tried dionin in increasing strengths. I would be glad for any suggestions.

Dr. Bane suggested dusting mercurol into the conjunctival sac.

### Iridocyclitis Secondary to Pyorrhoea Alveolaris.

Dr. H. M. Thompson reported a man of 54 years, having been referred by Dr. Wilson of Holly, Colorado. Patient came to him on March 15, with much pain in both eyes, intense conjunctival and ciliary injection, the left eye being the greater offender with vision of fingers at a few feet. The right eye retained about 20/30 vision. The present trouble began about two weeks previous. The patient gave a history of a similar attack one year ago which cleared after three weeks' treatment by Dr. Wilson. Pigment on the anterior lens capsule evidenced an old synechia torn away by atropine dilatation. The personal history would lead one to immediately conclude the case one of lues; rheumatism for a number of years, pain in back and down hips, in elbows, suggesting the so called bone pains of syphilis. The man was married young, his wife had given birth to seven children, four of whom are living and well; also history of three miscarriages. Blood, urine, and Wassermann were negative. Notwithstanding a negative reaction carefully done by Dr. Maynard in a group where positive reactions predominated, the patient was placed on energetic specific treatment; mercury, iodides and baths pushed to his full endurance. The condition of the eyes did not improve but after a number of weeks actually became more intense. The patient was induced to have all his teeth extracted. Note result: Teeth extracted by Dr. Needles and three days later the eyes had practically regained their normal whiteness, vision greatly improved, normal in right eye and left gaining rapidly. The result was so immediate that the case is one of unusual interest.

### Descemetitis Following Cataract Extraction.

Dr. Thompson also showed a case whose etiology was apparently of similar origin to the above. Mr. B., age 61, over the simple operation are largely imaginary, while the danger of prolapse of the iris is real.

I wish, also, to introduce to you a method that I have used in my last three cases with good success, and which, I believe, has some merit. I do a preliminary capsulotomy by a modified Harmon Smith method.

The pupil is fully dilated by atropine, and an incision is made in the capsule for about one-third the circumference and as near the upper edge of the lens as possible.

If there is any suggestion of increased tension in eight hours, I complete the operation; if not, I wait until the following day. In two cases, I found that the lens passed readily and easily without further capsulotomy and, in the third case, I felt that the previous incision was useful.

I have never been troubled with striped keratitis.

*DISCUSSION.*

Dr. Matson saw many cases of pyorrhoea alveolaris which did not develop eye affections.

Dr. Patterson recalled a remarkable case of keratitis which promptly recovered on removal of teeth from the pus laden gums.

### A Peculiar Keratitis.

Dr. Thompson presented Miss S., age 29. Family and personal history negative, chorea at age of 13, otherwise has enjoyed excellent health. Negative to Wassermann, Von Pirquet and urine. Condition first noticed February 2nd, 1917. Eye showed little inflammation. Patient complained of having a foreign body in the eye. I was unable to see any cause for a number of days, then on dilatation of pupil the peculiar minute bleb-like ramifications were discovered. Looked as if edge of corneal epithelium was raised and separated. This extended irregularly for about 5 mm. towards center of cornea. Scraping the visible lines, applying dionin and heat reduced most of it but patient continues to complain of the feeling of a foreign body in the eye. The epithelial loss persists, although the involved area is considerably decreased. There has been a complete absence of any tendency to ulceration and the process is apparently limited to the superficial layer. The lesion does not stain with fluorescein.

Dr. Jackson thinks there is an important nerve element which explains the peculiar form and suggests that it might be classed as a form of dendritic keratitis.

Dr. Patterson mentioned that it would be well to investigate the branches of the fifth nerve.

HENRY M. THOMPSON, Secretary-Pro-tempore.

## THE (NEW) AMERICAN JOURNAL OF OPHTHALMOLOGY

The following announcement will shortly appear in *Ophthalmic Literature*, from the pen of Dr. Edward Jackson. As it exactly expresses the sentiments of the Editors of the OPHTHALMIC RECORD, our readers are asked to take notice that with the publication of the December number of this Journal we shall have said our last word and our *nunc dimittis*.

The new Journal will replace the,

The American Journal of Ophthalmology,
The Annals of Ophthalmology,
THE OPHTHALMIC RECORD,
Ophthalmology,
The Ophthalmic Year Book,
Ophthalmic Literature,
Anales de Oftalmologia.

The last was established by M. Uribe y Troncoso and published in Mexico for 18 years.

This name, besides corresponding to that of the *British Journal of Ophthalmology*, formed by the union of all the ophthalmic journals in the British Empire, indicates the representative character that the new journal will strive for; and is also the name of the first ophthalmic journal published in America.

In July, 1862, Dr. Julius Homberger published in New York the first number of the *American Journal of Ophthalmology*. It was published bi-monthly. The last number of the first volume, although dated May, seems to have appeared in August, 1863. The first number of the second volume bears the date of January, 1864, and apparently only two numbers of this volume were ever published.

In 1862 the only ophthalmic journals published were the

*Annales d'Oculistique,* begun by Cunier in 1838; *Graefe's Archiv für Ophthalmologie,* established in 1854; *The Royal London Ophthalmic Hospital Reports,* established in 1857, and the *Reports of the Netherlands Hospital for Eye Patients,* started by Donders in 1858. It was in 1862 that Zehender began to issue the *Klinische Monatsblätter für Augenheilkunde,* and in the same year that Laurence and Windsor started the first *Ophthalmic Review,* which was published for about four years in London.

In 1862 there was no ophthalmological society in America, no professor or other recognized special teacher of ophthalmology in any American medical college. Specialists were regarded as charlatans, and most of them up to that time had deserved this reputation. It was no wonder that Dr. Homberger's journal, excellent as it was, did not long survive.

When the new *American Journal of Ophthalmology* was started in 1884, by Dr. Adolf Alt, conditions had somewhat changed. The American Ophthalmological Society had been meeting regularly for almost twenty years. Ophthalmology had been recognized in one of the Sections of the American Medical Association. There were local societies devoted to it. It had a lecturer or professor in each of the better medical schools. With the help of men like John Green, William Thomson, Wadsworth, Kipp, Hotz, Buller and others, Dr. Alt has been able to make his journal a scientific success and to maintain it for more than one-third of a century.

But this has been accomplished only by effort and sacrifice, and the development of the journal has been hampered by lack of support. The time has now come when there are six thousand or seven thousand medical men in America, who claim to pay special attention to diseases of the eye. It is now as proper to combine the needs and resources of a large proportion of these ophthalmologists in the establishment of a greater American Journal of Ophthalmology, as it was for Dr. Homberger to attempt his first publication, or Dr. Alt, with the assistance of a group of friends to make good what his predecessor had attempted.

This new undertaking is now well started. The existing journals named above have been brought together, a larger income has been pledged to the new enterprise than any ophthalmic journal has heretofore been able to command. The plans for organization of the new journal are rapidly being perfected. This is not the time to announce them. They will in due season announce themselves. But it is the time for any ophthalmologist who has thought of a way in which ophthalmic journals could be improved, to offer his suggestion. All such suggestions will be welcomed and carefully considered.

It is also the time when every ophthalmologist, who is interested in having a good journal, should give the support of his subscription. It is hoped that every subscriber to this journal will now subscribe for its successor. The price for the new journal will be $10 per year. This will be less than one-third of the cost of the journals that it replaces. Nearly one thousand subscriptions had been received at a price of $15 per year. But it is hoped that a much wider circulation can be secured at the lower price. With the co-operation of those who have previously taken the journals to be replaced this hope will be fulfilled, and the new *American Journal of Ophthalmology* will be as great an advance on its predecessors as was the publication of the original journal where no periodical of the kind had previously existed.

## A LETTER FROM CAMP TAYLOR.

The following extracts from a letter written to Major Casey Wood by Major W. H. Wilder, head of the ophthalmic service in a Louisville camp, reflects very accurately the experience of ophthalmologists in charge of other base hospitals in the fifteen cantonments of the United States. In some camps, however, there is less trachoma—in Camp Sherman practically none. Probably this varying experience is due to the different proportion of mountain conscripts. It may be added that the letter is published with the permission of Major Wilder, but was not originally intended for publication; we trust that later he will give us a more extended report of his important base hospital. There are, also, no military secrets revealed by it:

"This camp is probably as far along as any of them and when I arrived, about September 18th, we were just getting our second contingent of 40 per cent of the draft. My work, like yours, I suppose, was on the Review Board to pass on all doubtful and rejected cases seen before by the regimental surgeons.

"Two weeks ago the third contingent of 20 per cent arrived, so that now we have 65 per cent of the quota we are expected to have (42,000), or about 27,000 men.

"Some of our regimental surgeons seem to have been rather lax or indifferent or incompetent, judging from some of the cases they have accepted that later came back to us. Some of the local boards here allowed one-eyed men to come to the camp. For example, I had two men with glass eyes to reject. Cripples with club feet, deformed men, imbeciles and other incompetents have been rejected by our board. Trachoma has not been carefully looked for and as we draw from the trachoma regions, getting our men from Indiana, Kentucky and Southern Illinois, you can understand we have had a number of these cases, totalling about 150 to 200, I should think. At one time we had about 45 cases, a few of which were doubtful, in the hospital wards awaiting discharge. I recommended to Div. Surgeon Allen that all cases of conjunctivitis in which there is any suspicion of trachoma should be rejected or, if found in the camp, should be discharged as soon as possible, rather than be kept to complete the diagnosis, which might require weeks. This policy has been followed, I think wisely, for I am not one who believes with Drs. McCormack and McMullen of the Public Health Service, that true trachoma can be cured without danger of recurrence in a few weeks. I have been very busy at times, the eye department getting in the second contingent about 20 per cent of all cases sent to the Review Board, but there were comparatively few interesting pathologic cases; and I have examined all fundi. The defective vision in most of them was congenital amblyopia, or amblyopia associated with myopia or high degrees of astigmatism with nothing showing in the fundus. The most interest attached to running down the malingerers and most of these were easy prey. However, several who alleged blindness in both eyes, say 10/200 or worse, were hard to expose, or at least, I have not yet found a way to measure the visual acuity with any degree of certainty, for they are cute enough to balk me, as I had them approach the chart and read at different distances and we are not as yet equipped with mirrors and inverted test types."

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The comparative low rate of cases of hemeralopia, as seen in normal peace times, has increased very noticeably in certain periods of the war. During the winter, in ocular examinations at Verdun, Bourdier found this condition in 8.78 per cent of cases. During the same period there was also a grave epidemic of the same condition in the German army. More recently, Vejers has observed it in proportion of 10.2 per cent.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 25 E. Washington, St., Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Dr. George F. Libby announces that he has resumed his practice in Denver, Colo.

Dr. Leprince, editor of "Revue International," has moved from Bourges to Nice, where he practices from October to June, each year.

Dr. A. Wallace Weihen has resigned his appointment as Honorary Ophthalmic Surgeon to the South Sydney Hospital, New South Wales.

Dr. Santos Fernandez, president of the Cuban Academy of Science, was the guest of honor at a luncheon given in October by Dr. William Campbell Posey of the Wills Eye Hospital.

Major Casey Wood, Base Hospital, Camp Sherman, Chillicothe, O., in addition to his more serious duties, conducts a class for officers in elementary French military medical conversation. It is said to be quite popular and numerously attended.

Major George E. de Schweinitz, Medical Reserve Corps, has been assigned to active duty at Philadelphia for the purpose of compiling a handbook on ophthalmology for the use of the surgeon-general of the army.

At the forty-seventh annual meeting of the Colorado State Medical Society, held in Colorado Springs in September, Dr. Edward Jackson of Denver was elected president for the ensuing year.

Letters from a number of medical officers in different base hospitals, in charge of the ophthalmological work, indicate that things are still in a more or less chaotic state because of the incompleted buildings, etc. In many camps temporary quarters are still in use, but work is going on rapidly on the permanent buildings.

The United States Government has given an order for 360,000 pairs of lenses to be put into gas masks and aviators' goggles. "Resistal" reinforced safety glass is used for this purpose. It will require about two months to fill this order.

Health Commissioner Ruhland of Milwaukee, Wisconsin, is making a strenuous effort to induce state authorities to include trachoma among the reportable communicable diseases. This has already been done in New York, Ohio, Mannachusetts, Pennsylvania, Kansas and Louisiana.

During the present college year the Philadelphia Polyclinic will offer three graded courses in ophthalmology, of twelve weeks each. These courses comprise diadactic lectures, practical work in the dispensaries, operative ophthalmology on animals' eyes and on the cadaver, and a laboratory course in embryology and pathology.

Dr. J. Lockhart Gibson has encountered a number of cases of optic neuritis in children, caused by lead poisoning. Most of the cases occurred in Queensland, Australia. The houses there are mostly built of wood, and the railings of the verandahs are painted with a cheap lead paint. Most of the patients afflicted with plumbic neuritis were in the habit of sucking their fingers or biting their nails, and in this way absorbed the lead.

## OBITUARY.

Dr. Charles E. Beardsley, Ottawa, Ohio, June 26. Age 82

Dr. Herbert G. Jones, Utica, N. Y., July 5. Age 59.

Dr. William L. Jerkins, Moultrie, Ga., Aug. 8. Age 46.

Dr. Frank Cornwall, San Francisco, Aug. 30. Age 71.

Dr. Robert M. Richardson, Chattanooga, Tenn., Sept. 18. Age 33.

G. Stanculeanu, professor of ophthalmology at the University of Bucharest until the German invasion, who has been lecturing in this country in the interest of the Roumanian government, died recently at a sanatorium at Stamford, Conn., of pneumonia. Dr. Stanculeanu arrived in New York two or three months ago, and suffered a nervous breakdown. When the Germans invaded Roumania he and his wife fled, leaving behind all their property except what they could carry in a handbag. Later they were sent to America on a mission by the Roumanian government.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXVI CHICAGO, NOVEMBER, 1917 No. 12, New Series

## VALEDICTORY.

With this number the OPHTHALMIC RECORD terminates an existence of twenty-six years. Founded by Dr. G. C. Savage in April, 1891, it at once became, under the editorial management of that incisive writer, a power in American ophthalmic circles.

In 1897 it passed under the control and management of the present Editor-in-Chief, who was enabled, through the support of Drs. Geo. E. deSchweinitz, W. E. Hopkins, G. C. Savage, John E. Weeks, F. C. Hotz, H. V. Würdemann, Harold Gifford, Edward Jackson and Frank Allport, acting as an Editorial Board, and a goodly number of collaborators, to carry out the project of giving to the profession a monthly magazine appealing chiefly to the practical, every-day side of ophthalmology.

To the assistance, financial and literary, of these devoted ophthalmologists was added the practically unrequited labors of the Editorial Secretaries, Drs. Thomas A. Woodruff (1897-April, 1913); Thomas Hall Shastid (May, 1913-December, 1913); Frank Brawley (1914-1917).

To all of these colleagues now living the present Editor wishes to express not only his heartfelt thanks, but the belief that in the new *American Journal of Ophthalmology* the memory of the dead and the aspirations of those that remain will find full expression.

In addition to the practical appeal made by the management of the RECORD, this magazine published, from time to time, original articles on what might be termed the purely scientific aspects of ophthalmology, especially on physiological optics, but in the main it deliberately and by agreement left this and similar limited but highly important subjects to *Ophthalmology* and other quarterlies.

Finally, one word touching those subscribers and contributors that have been the well-tried friends of the RECORD for so many years and who, through good report and ill, have so generously aided the enterprise. The Editor-in-Chief pledges his word that, so far as his influence can be exerted, the new merger *Journal* will not lose sight of their particular needs and wishes.

CASEY A. WOOD,
Major, M. R. C., U. S. Army.

Base Hospital, Camp Sherman,
Chillicothe, Ohio.

## FROM THE PUBLISHER.

Subscribers to the OPHTHALMIC RECORD whose paid subscriptions end with this number are urged, if they have not already done so, to subscribe for the new *American Journal of Ophthalmology.* A postal card to the undersigned will be all that is necessary; a bill will be sent them later.

*Unless otherwise directed* subscriptions for the 1918 RECORD, paid or unpaid, will be credited or entered as subscriptions to the 1918 volume of the new merger *Journal;* for the balance accounts will be duly rendered.

Advertisers will be specially considered, although it may well be understood that in the new *Journal,* nearly three times the size of the RECORD, combining all the departments and advantages of seven active ophthalmic journals, with a much larger subscription list and a much wider circulation, advertising rates will be decidedly advanced.

H. A. FOX,
Publisher of the OPHTHALMIC RECORD,
7 West Madison Street,
Chicago.

## NEUROLOGIC PERIMETRY AND A METHOD OF IMITATING DAYLIGHT WITH ELECTRIC ILLUMINATION.*

BY

CLIFFORD B. WALKER, A. M., M. D.
Assistant in Ophthalmology, Medical School of Harvard University;
Associate in Surgery, Peter Bent Brigham Hospital
BOSTON

In a previous paper[1] I have described much of the technic of modern perimetry in connection with the study of color interlacing in neurologic cases, from the surgical clinic of Prof. Harvey Cushing. It was stated there that I believed it possible to imitate the daylight illumination of the perimeter and perhaps improve it in many respects by use of an arc of electric lights properly controlled and arranged. Accordingly I wish to submit in this paper an apparatus for the satisfactory perimetric examination day or night of difficult neurologic patients.

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*The sequel to this paper will appear in the Trans. of the Am. Ophth. Soc. for 1917 under the title of "Quantitative Perimetry; Practical Devices." Also Arch. of Ophth. November, 1917.

### The Perimetric Problem in a Neurologic Clinic.

Probably the greatest difficulty to contend with in this group is the matter of comfort. If the patient can be kept comfortable throughout the examination, half the battle in taking a complete field at one sitting may be considered won. This is true not only because the time is greatly shortened, since the patient can make a greater number of observations without rest, but also because the answers are more accurate and consistent, thereby greatly reducing the number of readings that have to be discarded.

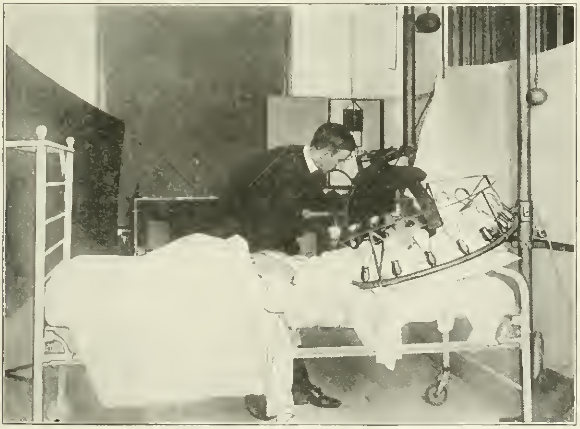

Fig. 1.—Adjustment of Suspension Perimeter for Patient in Bed.

After the physical capacity of about 1,500 neurologic patients had been observed, it was noted that practically all of them could be moved into a reclining wheel chair and kept comfortable for a period of two hours or so. In the worst cases the patients could at least be moved so that the head would be at the foot of the bed, slightly elevated with a pillow or two (Fig. 1). In these cases, however, perimetry is apt to be prevented by the mental state of the patient, except in the postoperative group, in which a field may be desired the first day or two after operation. In the latter group the presence of a cast or head dressing may interfere, though almost always it may be trimmed away sufficiently about the eyes (Fig. 2).

Having determined what positions of comfort must be used, we may desire an apparatus for holding the perimeter in the proper corresponding positions; but still other conditions should be fulfilled. In the first place it is desirable to be able to take a field at any time of day or night, not only because there may be an urgent demand for an immediate report, but also because there may be only certain intervals at odd times

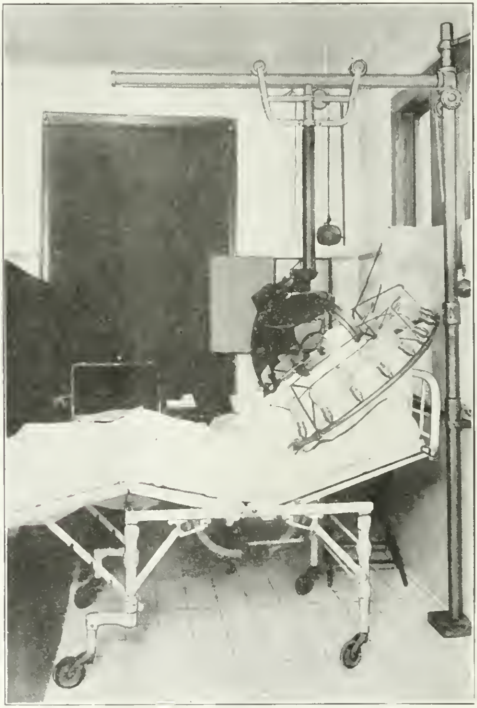

Fig. 2.—Adjustment of Suspension Perimeter for Patient in Way Bed.

when the patient is mentally lucid enough to be examined. Again, because of dark cloudy days, and short winter days, artificial illumination becomes necessary to meet the time requirement. But when the patient is placed in the recumbent position, even good daylight becomes unsatisfactory because most of the distribution comes from above, whereas it should come from below. Artificial illumination must therefore be used, not only because it is available at any time, but also because it can be adjusted to project in any direction.

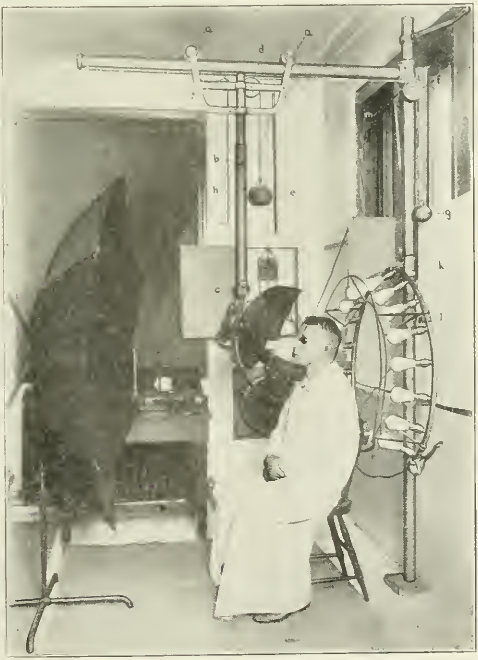

Fig. 3.—Adjustment of suspension perimeter for patient in sitting position; *a*, *a*, suspension carriage rollers; *b*, telescoping pipes and clamp; *c*, ratchet joint; *d*, *f*, *m*, counterweight pulleys; *e*, *g*, counterweights; *h*, trigger controlling horizontal motion of carriage; *k*, *l*, sliding sleeves for light carriage adjustment.

Thus we find that the solution of our problem requires the fulfillment of two conditions; first, an apparatus to hold the perimeter in proper relation to the eyes of the patient while in a comfortable reclining or sitting position, and, second, an adjustable illuminating apparatus.

### The Suspension Apparatus.

It was decided that the conditions cited with reference to the proper support of the perimeter could best be fulfilled by suspension from above. Accordingly the apparatus shown in Figure 3 was designed. A glance at this shows the moving parts all supported by a right angle crane of 2-inch iron pipe held in a vertical position by a clamp to the window casing above, and below by a pivot on the floor. The projecting arm of the crane can swing through 180 degrees by this arrangement, so that the apparatus can be pushed slightly to one side or clear over against the wall, when not in use.

The perimeter is suspended from a carriage which is underslung from two rollers (*a*, *a*) traveling along the upper surface of the projecting arm of the crane. The carriage and the perimeter are connected by two telescoping pipes (*b*) which can be clamped together. This telescoping tube provides movement along and rotation about the vertical axis of the perimeter. At the lower end of the outside telescope pipe is a ratchet joint (*c*) to which the perimeter is clamped below. By means of this joint the perimeter can be tilted through an angle of 90 degrees from the vertical corresponding to the angle at which the patient reclines (Figs. 1, 2, 3 and 4).

In order that the horizontal motion of the carriage on the crane and the vertical motion of the telescoping pipes can be smoothly controlled, counterweights are used thus: Two cords inside the telescoping pipe are attached to the lower segment just above the ratchet joint. These cords, emerging at the top of the upper segment, pass over a pulley (*d*) which projects into the pipe through a slot. One of the cords then passes directly downward again to attach to the larger counterweight (*e*), while the other passes along the horizontal arm of the crane and over another pulley (*f*) on the upright pipe, and thence down to the smaller counterweight (*g*). The sum of these weights is equal to the combined weight of the perimeter and the lower segment of the telescoping tube. By this arrangement the smaller weight (6 pounds) not only acts as a counterweight for the perimeter but also pulls the carriage slowly along the crane toward the patient, if the trigger (*h*) is depressed. This motion can be checked at any point by releasing the trigger (*h*), which allows a dog to escape in the notched strip of channel iron fastened to the under surface of the crane. The strip of channel iron also serves to prevent lateral swinging of the telescoping tube, the latter being grooved at its upper end to receive the projecting margins of the channel iron.

By use of these devices the perimeter may be easily moved forward or back, up or down, swung to one side, rotated or tilted to meet all of our requirements with respect to position. Any perimeter may be suspended in this way. The one we use is a very wide faced perimeter of special design which has been previously described.[2]

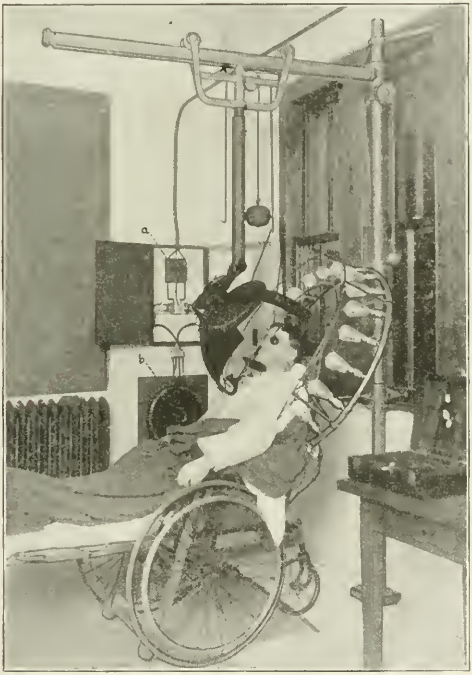

Fig. 4.—Adjustment of suspension perimeter for patient in wheel chair: *a*, switch board; *b*, rheostat.

The illuminating device is also attached to the vertical portion of the crane as shown in Fig. 3. To make this apparatus a piece of 1-inch iron pipe 8½ feet long is bent to form an incomplete circle 3½ feet in diameter. The opening in the circle is wide enough (20 inches) to admit the back of a wheel chair. Holes are then drilled and tapped at an angle of 60 degrees with the axis of the circle, to receive sixteen sockets for electric light bulbs at intervals of about 6 inches. This brings the source of light to lie in a circle of about 32 inches diameter, the distance of each light from the center of

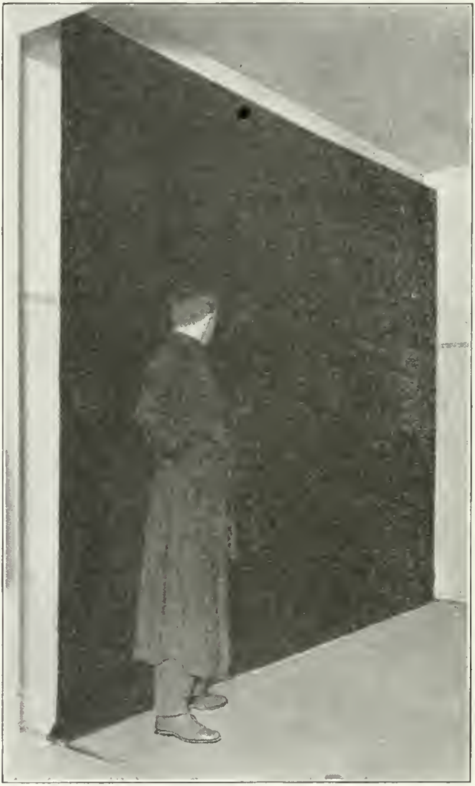

Fig. 5.—Large black screen serving for Bjerrum test and as a dark background when the perimeter is in use, black gown and gloves are worn by the examiner.

the perimeter during working conditions being 30 inches. The electric lights are protected simply by two parallel circular wire guards running around on each side and a little in front.

This circular bank of lights is hinged at its upper mid-portion directly to a sliding sleeve (*k*) on the upright portion of the crane. The two lower ends of the bank are also hinged to a lower sleeve (*l*) but with the intermediation of two rods 2¼ feet in length so that as the lower sleeve is made to slide down while the upper sleeve is clamped, the bank of lights can be tilted forward to the desired angle and fixed in position by clamping the lower sleeve (Figs. 1, 2, 3 and 4). However, when both sleeves are free, the bank hangs vertically and can be easily raised or lowered, being counterweighted over the pulley (*m*) on the upright portion of the crane.

In connection with this apparatus, I have also designed a Bjerrum screen (Fig. 5), which is placed directly across the room at a distance of 3 meters or less if desired. The screen can be used with the greatest ease after the visual field has been taken by simply pushing the perimeter to one side, and propping up the patient's head somewhat, if in the reclining position. Artificial illumination from the perimetric lights is a great help, since a large screen such as we use is difficult uniformly to illuminate in an ordinary room. The screen is made of light weight black canvas stretched over a frame measuring 9 by 11 feet. The frame is made of ¾-inch pipe having at the bottom short (18 inch) extensions at right angles to the screen, giving sufficient base to maintain a firm upright position. The canvas overlaps the frame and is laced taut behind by stout cording. The screen may be moved about the room and is readily demountable if it is necessary to move it to another room.

The examiner wears a black gown and gloves as shown in Figure 5, and, standing close to the screen, is able to see the lines of circles drawn on the screen representing the field at 2 and 3 meters distance. The patient is not confused by these lines, since they are drawn with a soft pencil, and can be well seen only by the examiner. The lines for 3 meters are solid, those for 2 meters are broken. Three meters is the distance used for the most part, since only the very smallest visual angles (below 3 minutes) are tested on the screen, the larger angles (3 minutes and more) being readily tested on the perimeter by use of fine disks previously described.[2] The fixation point is slightly above the level of the patient's eye in order to get a sufficient field of screen below. The error on this account is negligible, since most of the measurements are under 30 degrees from the center.

**Illumination.**

In a previous paper I have already stated my objections to the use of transilluminated (if I may use that term) test objects as a method of accurate perimetry. Briefly they may be stated as follows: It is necessary to work in the dark in order to control retinal dark adaptation phenomena which are not constant for half an hour or more. During the entire field examination this dark adaptation must be maintained constantly.

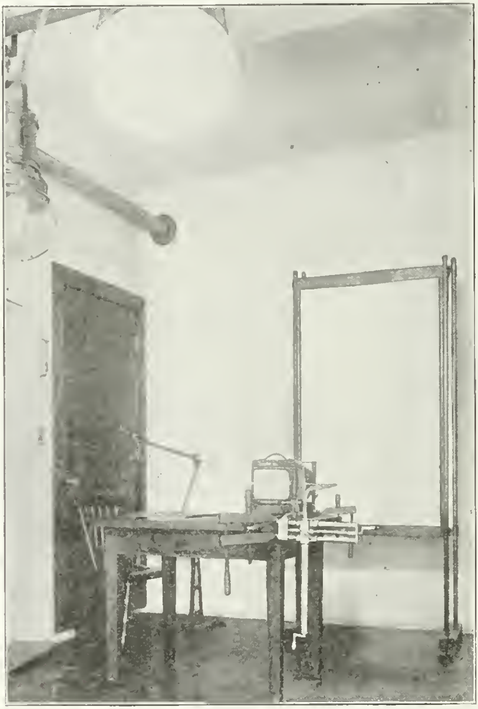

Fig. 6.—Arrangement used to make Exposures for Photographic Wedge Plates.

Diffusion and dispersion of light rays in transit of the vitreous lead to confusion in determining the boundaries of the field. The size of the pupil may vary with the distance of the transilluminated test object from the center. The central fixation light and the test light may produce after-images. But, worst of all, the patient's eye cannot be observed in the dark as to fixation, and a mechanical perimeter is necessary to make the record. With the mechanical perimeter we cannot be sure of our records in the dark, nor can we use the range of disk-sizes necessary for a complete examination, as stated in the paper already mentioned.

With transilluminated test objects and mechanical perimetry precluded, we have left the possibility of closely imitating good daylight on the plain perimeter. Daylight, that is, skylight or cloudlight, may be closely imitated by strongly transilluminated milk-glass. And our original idea was to use the new nitrogen bulbs (75 watts) for this purpose; but it was soon found that, although they could be used, the heat developed by them, when used in sufficient number, was considerable. However, certain helpful data were obtained before they were changed.

Fig. 7.—Drawing to scale of the completed photographic wedge, showing calibration in terms of "lunar unit." Reduced ½ size.

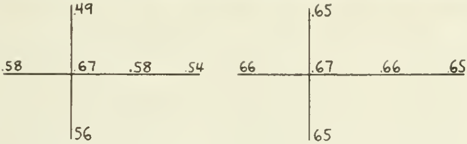

Fig. 8.—Comparison of illumination on principal points of perimeter by average daylight and by equivalent artificial illumination. Compare Tables 3 and 4.

From the switchboard (Fig. 4 *a*) the lights can be controlled in intensity through a wide range by use of a theater dimmer (*b*). The lamps are connected through this dimmer in two circuits, alternate lights being on separate circuits. Either circuit, or both together, can be separately controlled through the dimmer. It was found that sixteen of these lights are considerably more than are needed when not dimmed, but when they are dimmed to about the strength of skylight the "white" character of the light is lost, and reddish tints are more noticeable.

Accordingly it was decided that the rheostat is to be used only to determine, in the first place, how much light is required to approximate daylight, and later only for small adjustments. When the desired amount of light is thus determined, as will be explained later, it is duplicated by trying light bulbs of various wattages in the circular bank, with the rheostat out of circuit. Further adjustment cannot be done until daylight illumination of the perimeter had been carefully studied as a standard of comparison. This work may be outlined as follows:

### Calibration of Daylight and Artificial Illumination of Perimetric Test Object.

It was necessary first to provide a fairly accurate photometer of small size so that it would not itself block off illumination from the test objects. Also it should be possible to use the photometer when the test disks are at any point on the perimeter. Further, the observer's eye should be covered as little as possible so that the compensating devices of light adaptation and pupillary reaction shall be practically the same as in the patient's eye during field examination.

After considering several kinds of photometers, it was decided that a narrow wedge which could be moved vertically before the eye would best meet the requirements.

The light transmitting properties of a true wedge can be well imitated by proper exposure of photographic plates. Such wedges have been used by astronomers and Dr. Williams for measuring small or weak lights. Figure 6 shows an extemporized arrangement with which plates of sufficient uniformity for our purposes have been made. A 5 by 7 camera is fixed to a table in such a position that the slide of the plate holder can be drawn by the horizontal screw of a Killian suspension apparatus. Any small windlass device will be just as satisfactory, since with a little practice one can develop a very uniform winding motion.

The exposure starts as soon as the slide leaves the end of the plate holder, since the shutter is left open, and ends when the shutter is closed at the moment the slide is out, the camera being pointed somewhat out of focus toward a white uniformly illuminated wall or screen. It was soon found, however, that uniform motion of the screw did not give a sufficiently short scale, no matter what the speed. If the speed, however, was increased from a very slow winding motion, at first, to a very rapid motion at the finish, a wider range was obtained. But if in addition to the increasing speed the diaphragm of the camera is gradually closed during the withdrawal of the slide by an assistant, a scale which is short enough, or even too short a scale, may result.

A variety of plates were made with these different exposures and then cut into strips 1 cm. wide. While no single strip gave us exactly the desired scale, a combination of two or more strips selected by trial gave a very satisfactory photometric wedge, since small variations in density were thereby averaged. With the glass side turned out and a marginal binding of adhesive or gummed paper, a handy little instrument was obtained (Fig. 7, reduced one-half size).

A satisfactory wedge for our purposes having been selected and mounted, there remained the problem of calibration. Here again selection of a suitable method was necessary. The use of a point source of standard light and the square of the distance ratio was unsatisfactory, as was also the use of the stellar magnitudes used by astronomers. The reason for the failure of these methods, I think, is really a retinal phenomenon well

TABLE 1.—CENTRAL ILLUMINATION OF PERIMETER BY BRIGHT MIDDAY LIGHT AND BY CLOUDY DAYLIGHT.*

| | Averages of Bright Days, Best Light | | Light Failures on Afternoons of Ordinary Cloudy Days (Averages) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Disk Diameter. | Noon. | 10 a.m. and 2 p.m. | 2 p.m. | 3 p.m. | 4 p.m. | 5 p.m. | 5:30 p.m. | 6 p.m. | 6:30 p.m. |
| 40 mm. | 0.75 | 0.73 | 0.67 | 0.63 | 0.50 | 0.41 | 0.35 | 0.30 | 0.20 |
| 20 mm. | 0.74 | 0.72 | 0.65 | 0.60 | 0.49 | 0.40 | 0.35 | 0.27 | 0.18 |
| 10 mm. | 0.73 | 0.71 | 0.63 | 0.58 | 0.48 | 0.38 | 0.33 | 0.25 | 0.15 |
| 5 mm. | 0.71 | 0.69 | 0.61 | 0.56 | 0.47 | 0.37 | 0.30 | 0.22 | 0.13 |
| 2.5 mm. | 0.63 | 0.60 | 0.57 | 0.51 | 0.45 | 0.35 | 0.28 | 0.17 | 0.10 |
| 1.2 mm. | 0.52 | 0.50 | 0.48 | 0.45 | 0.40 | 0.30 | 0.20 | 0.11 | |
| 0.6 mm. | 0.43 | 0.41 | 0.39 | 0.36 | 0.31 | 0.21 | 0.10 | | |
| 0.3 mm. | 0.31 | 0.30 | 0.28 | 0.28 | 0.22 | 0.10 | | | |
| 0.15 mm. | 0.20 | 0.19 | 0.17 | 0.16 | 0.12 | | | | |

TABLE 2.—ILLUMINATION POSSIBILITIES (CENTRAL) WITH VARIOUS LAMPS AND CIRCUITS.

| Disk Diameter. | 1 Circuit 60 Watt Lamps. | 2 Circuits 60 Watt Lamps. | 1 Circuit 40 Watt Lamps. | 2 Circuits 60 & 40 Watt Lamps. |
|---|---|---|---|---|
| 40 mm.............. | 0.66 | 0.75 | 0.64 | 0.70 |
| 20 mm.............. | 0.65 | 0.74 | 0.63 | 0.69 |
| 10 mm.............. | 0.64 | 0.73 | 0.62 | 0.68 |
| 5 mm.............. | 0.63 | 0.70 | 0.60 | 0.67 |
| 2.5 mm.............. | 0.55 | 0.63 | 0.53 | 0.60 |
| 1.2 mm.............. | 0.48 | 0.52 | 0.44 | 0.50 |
| 0.6 mm.............. | 0.38 | 0.40 | 0.33 | 0.39 |
| 0.3 mm.............. | 0.27 | 0.30 | 0.24 | 0.28 |
| 0.15 mm.............. | 0.18 | 0.21 | 0.16 | 0.19 |

*Tables 1 and 2 present a comparison of central perimetric illumination by daylight (general average) and by artificial illumination of different strengths.

shown in Tables 1 and 2. Here it is notable how fast the reading decreases as the size of the disk decreases, although the illumination per unit of area is constant. This was noted roughly before the calibration was done. As the object becomes punctuate in size the readings become more uncertain until finally the point is reached at which the normal central scotoma begins to interfere. These factors make it more difficult to build up a scale from a point source as a standard, than to build down from an illuminated disk on which it is much easier to make a reading.

A consideration of our difficulties fairly suggests that the full moon in a cloudless sky would make an excellent standard for many reasons. It is diskiform, fairly uniformly illuminated, and of size comparable in visual angle to some of the disks to be examined. It is more strongly illuminated than any of our disks as used. so that the "lunar unit," as I shall call the strength of full moonlight illumination, must be divided preferably decimally to give the desired scale for use on perimetric disks.

The division of the "lunar unit" was accomplished in the simplest manner by combining ten strips from a plate of such strength that the full moon observed through them could be blanked out at some point as they were drawn past the eye. This point was determined in the same manner on the wedge which we wished to calibrate.

Since all ten strips in the combination first described were of exactly the same density at the point at which the moon was blanked, we assumed that each strip represented one-tenth of a "lunar unit" at that point. If one of these strips is taken and the wedge to be calibrated is moved at right angles to the strips at the point mentioned, a place is found at which the moon is just blanked through the combination of strip and wedge. This point will obviously represent 0.90 lunar unit on the wedge. Next, two strips being taken, the point on the wedge representing 0.80 lunar unit was found; and by repeating the process, the wedge was divided into tenths of a lunar unit. The distance between each tenth was then arbitrarily divided into tenths so that our photometric wedge was finally calibrated in hundredths of the lunar unit, as indicated in Figure 7, which is drawn to scale.

Although the photometer described is not the most accurate, it has all the accuracy necessary and possible to apply under the conditions of observations by the patient. The results obtained with it are satisfactory and easily obtained. In taking the readings the observer seats himself at the perimeter with the eye at the center of the perimeter and observes the disk to be tested through the wedge held vertically before the eye. The wedge is slowly moved until the disk is just blanked out. A slight motion of the disk may be made at this point to assist the observation as the disk is made to appear and disappear several times until checking readings are obtained.

With this simple device a great number of observations were easily and rapidly made on the various sizes of test objects, both centrally and peripherally placed on the perimeter. Observations were made in all kinds of daylight, from morning until night, and in all sorts of weather conditions. Likewise observations were made with artificial illumination alone and with combinations of various conditions of daylight and various grades of artificial light.

To reduce the mass of data obtained to the smallest possible space, we find that we can refer to the light of any type of dark day, rainy, snowy, etc., as being equal to the light at some particular time between afternoon and dusk of any average day during which we have studied the light every half hour or so until dark.

Thus Table 1 shows the failure of light on an average bright, although short winter day. At noon the light is best, but for two or three hours before and after, the light is almost equally as good. On our scale when the readings are above 0.60 for the large disk and 0.50 for the 5 mm. disk, light adaptation seems to compensate to such a degree that the fields are satisfactory. The difficulty at this point is that it will not be maintained long enough to do much in case it is late afternoon of an ordinary day.

As failure of light continues beyond this point, the smallest disks begin to be thrown out of commission; and although the larger ones can be used, their fields are contracted. Thus the effect of light failure on the size of the field varies inversely with the size of the disk.

The weakened daylight of bad weather is apt to measure close to or less than the lower limit of usefulness mentioned above. While the larger disks can still be used under these conditions without great error, owing to the compensation of dark adaptation of the eye, the fields for the smaller disks both on the perimeter and on the Bjerrum screen are usually considerably reduced. One circuit of light of 40 or even 25 watt tungsten lamps will bring such light up to a satisfactory working strength. Since the testing with objects of small visual angles is most valuable in modern perimetry, the use of weakened daylight should not be tolerated when it is so easily brought up to a satisfactory working strength by addition of the artificial illumination of a few electric light bulbs.

The average central reading obtained by average daylight on the normal or 5 mm. disk has been found to be short 0.67 on our scale. Other disks will give readings according to their size, as indicated in the tables. This degree of illumination is, of course, readily obtained artificially by use of the rheostat and strong light. But by trying lamps of various wattages, it was found that when eight 60 watt frosted tipped tungsten lamps were used in one circuit while seven 40 watt and one 60 watt lamps were used on the other circuit, the full strength illumination met our requirements. Table 2 shows the illuminating possibilities of 40 and 60 watt combinations. Since each circuit has a separate switch, three degrees of illumination are available without the rheostat. One circuit or the other alone may be used to strengthen weakened daylight, either late in the afternoon or in bad weather. In worse light, both circuits will be used. It is notable in the table that doubling the illumination does not double the readings due to light adaptation phenomena.

TABLE 3.—ILLUMINATION OF PRINCIPAL POINTS ON PERIMETER BY AVERAGE DAYLIGHT.*

| Position. | Average Daylight | | | | | | General Average |
|---|---|---|---|---|---|---|---|
| Centrally | 0.67 | 0.65 | 0.68 | 0.63 | 0.69 | 0.70 | 0.67 |
| 60° laterally | 0.58 | 0.57 | 0.57 | 0.54 | 0.50 | 0.62 | 0.58 |
| 90° laterally | 0.54 | 0.48 | 0.56 | 0.49 | 0.57 | 0.58 | 0.54 |
| 60° above | 0.48 | 0.46 | 0.49 | 0.45 | 0.50 | 0.54 | 0.49 |
| 60° below | 0.58 | 0.56 | 0.55 | 0.50 | 0.58 | 0.61 | 0.56 |

Thus far I have considered the illumination of the central portion of the perimeter. Daylight illumination falls off considerably in the region from 60 to 90 degrees from the center because of the disadvantageous angle at which the light falls on the disk in this region. Table 3 shows several observations, at different times, on the 5 mm. disk at characteristic points on the perimeter in average daylight.

In this respect artificial illumination has a decided advantage, as shown in Table 4. The peripheral readings under these conditions fall off a negligible amount. It must be noted, however, that these readings are all taken without the eccentric adjustment possible with our perimeter. If we use 20 or 30 degrees of eccentric fixation, we have almost perfectly uniform illumination with artificial light in spite of the incompleteness of the circular bank, where it accommodates the patient's chest. The readings in the latter table serve also to show what degree of accuracy may be obtained after some practice with the photometer used, repeating readings checking usually within two hundredths.

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*Tables 3 and 4 present a comparison of illumination on principal points of perimeter by average daylight and by equivalent artificial illumination. Compare Figure 8.

TABLE 4.—ILLUMINATION OF PRINCIPAL POINTS ON PERIMETER BY ARTIFICIAL LIGHT.

| Position. | Artificial Illumination | | | | | | General Average. |
|---|---|---|---|---|---|---|---|
| Centrally | 0.66 | 0.67 | 0.68 | 0.67 | 0.69 | 0.66 | 0.67 |
| 60° laterally | 0.66 | 0.65 | 0.67 | 0.66 | 0.66 | 0.65 | 0.66 |
| 90° laterally | 0.65 | 0.65 | 0.66 | 0.64 | 0.64 | 0.66 | 0.65 |
| 60° above | 0.64 | 0.67 | 0.65 | 0.64 | 0.65 | 0.64 | 0.65 |
| 60° below | 0.66 | 0.65 | 0.65 | 0.66 | 0.65 | 0.65 | 0.65 |

Under artificial illumination of this type, the colors seem to give practically the same readings as in daylight, though it may be added that we find examination with the minute disks and smallest visual angles will usually give all the evidences obtainable with colors, especially now that we have given up color interlacing as a valuable aid to the diagnosis of increased cerebral tension. Spectroscopically the difference between the colors illuminated by daylight and by this method is practically negligible, being much less than variation from week to week due to soiling and fading, and quite within the limits of variation in colors one may always find in different offices and clinics.

### Conclusions.

1. An overhead perimetric suspension apparatus such as described has the greatest possible range of service.
2. Artificial illumination arranged to imitate daylight has proved to be a perfectly satisfactory, complete or partial, substitute for daylight.
3. Artificial illumination is superior to daylight in uniformity, in constancy, in availability and in control.

### Abstract of Discussion.

Dr. Luther C. Peter, Philadelphia: The question of illumination in perimetry is of very great interest and exceedingly important. It is of decided value, I am sure, to follow Dr. Walker's mental processes and experiments in arriving at his conclusions because it impresses one with the intricacies of the problems involved in this apparently simple question.

The difficulties in the way of obtaining good perimetric studies are: (1) Improper illumination in the average office; (2) the absence of uniformity of daylight due to weather conditions; (3) bedside perimetry, which involves problems of its own; (4) a total absence of standards either as to the amount of light used or as to color values.

To discuss the last question first, it must be apparent to all that we can only approximate uniformity in light, much as accuracy is desired for scientific purposes. The nearest approach to uniformity is to be able to say that the examination was conducted before a window, preferably of northern exposure, on a bright day. In our effort to imitate daylight we naturally concede that daylight is our standard, and artificial illumination is an imitation. In any given case of great importance the work should be done under these recognized standard conditions whenever it is possible. Qualitative color changes are of more value in recognizing early pathologic processes than are alterations in the form field, and very slight differences in the amount and character of the light will produce perceptible color alterations. The character and amount of light, therefore, are of paramount importance, and only absolute necessity should lead us to adopt a standard less constant than good daylight.

As to bedside perimetry, the conditions here demand special study. The apparatus which Dr. Walker has devised for this purpose seems to be admirably adapted to fairly accurate work with a minimum amount of tax on the patient's strength. If the equipment is not too complicated, its general adoption by the larger hospitals would add much to our equipment for doing efficient work, in the neurologic cases in particular. I believe Dr. Walker does not recommend this as well adapted to general use in the private office.

How are we to overcome problems one and two, namely, the poor illumination found in the average office, and the variation in the degree of light on clear and cloudy days? This naturally resolves itself into the question of the effect of any form of artificial illumination on the field study. There is now general agreement that the transillumination, as Dr. Walker calls it, of the test object should be entirely eliminated from the perimeter because light as well as form and color are tested at the same time, the results of the examination being therefore inaccurate and misleading. In the illumination of the campimetric surface I have personally made careful studies with fields taken in good daylight and under suitable artificial illumination, and have not been able to find much, if any great difference in the size of the field, although I find it easier to determine the color limitations of my own field in good daylight. On cloudy days, therefore, I have not hesitated to use artificial illumination for the campimetric surface—Mazda lamps covered with ground glass being employed. The character of the illumination is noted on the chart.

The ideal artificial illumination is by the indirect lighting system—the light springing from one source in sufficient amounts to duplicate the even diffusion of daylight. When this is not possible, or for economic reasons, Mazda lamps covered by frosted globes may be substituted to illuminate the campimetric surface, care being observed that the entire surface shall be evenly illuminated. In collaboration with others, I am at present working on a lamp, both for campimetric and for test type illumination, which possesses the properties of normal daylight. The original cost, however, of such a lamp and the cost of operating the same is too much at present to admit of its general use in offices.

I should like to modify Dr. Walker's conclusion somewhat as follows: First, illumination such as can be obtained before a northern window on a bright day is the ideal and standard for perimetric work, and when this can be obtained, offers greatest uniformity in perimetric studies, a uniformity which will apply the world over. Second, when good daylight cannot be routinely employed, because of dark offices or when the sky is overcast, approximately uniform results can be obtained by the illumination of the campimetric surface, preferably by means of indirect lighting, or by direct illumination furnished by Mazda lamps with frosted globes. Third, the test object should never be transilluminated. Fourth, bedside perimetry may be conducted advantageously with artificial illumination, as suggested by Dr. Walker.

## ADDRESS OF PROF. G. STANCULEANU OF BUCHAREST BEFORE THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Before telling you about our troubles, perhaps you will be interested to hear of my investigations with my assistants before and especially during the war. As I had to leave Bucharest within two hours' notice with only a handbag, I left everything behind and I am sorry not to have my notes with me and I must recall from memory. I trust you will take this into consideration.

With regard to drugs we were struck with the powerful antiseptic action of adrenalin in cases of ulcers of the cornea and the specific action of pilocarpin against rheumatic iritis. Dr. A. Marie of Pasteur Institute, Paris, tried adrenalin, 10 to 100, against all kinds of microbes in the laboratory. He found that pneumococcus was the most influenced. I use twice a day two drops of adrenalin and have noticed that the ulcer improved and especially the hypopyon was resorbed very quickly. *In iritis* I began to use pilocarpin like we generally do when there is some tension, but we saw afterwards that it had a specific action in all rheumatic iritis cases, even those with no tension. A solution of 2 per cent was used. I like the association of drugs so I use frequently pilocarpin with dionin, which gave me good results in glaucoma hemorrhagicum, when operation was contra-indicated. You know how much Dr. Darier preached the association of cocain with adrenalin.

My assistant, Dr. Michail, has found that in cases with shallow anterior chamber by dropping alternately a drop of 4 per cent cocain and adrenalin, 10 to 100, every minute during ten minutes the anterior chamber was restored. When there was no chamber at all we used to inject salt solution through a thin needle directly in the anterior chamber to restore it. In cases of severe keratitis and iridocyclitis we injected in the anterior chamber a weak solution of iodide of sodium, but we took great precautions, as sometimes it gives strong reactions, so I think it is a method that will require experimentation, but I think a method of the future.

In severe cases of lues we injected a solution of cyanate of mercury, 1/2000, under the conjunctiva, and knowing the great changes in the aqueous humor which appear two hours after, at this moment we injected neosalvarsan into the blood.

*Operative Methods:* I continue to perform the extraction in the capsule after my own method, of which Prof. Howard Hansell and Dr. Likely Simpson had the kindness to give a full description. Its originality consists in seizing the anterior capsule with a small forceps, which is formed of two spoons. By lateral movements, i. e., from below upwards, we dislocate the lens and sometimes pull it out altogether. But in cases in which the lens is larger and the patient is not quiet enough we leave the dislocated lens in the anterior chamber and pull it out in the ordinary way. In all cases we test the tension before and if there is the smallest increase above the normal we drop cocain-adrenalin in the way mentioned above, so the loss of vitreous is very rare. We added a conjunctival flap, which seemed to Col. Smith one of the best and which he described and illustrated in the Ophthalmoscope of March, 1915.

*In glaucoma* the forming of the filtering cicatrix proved more satisfactory when practiced below, giving a better drain to the eye. Many cases which had only light perception recovered sight, the pressure on the optic nerve being thus entirely removed.

*In the struggle against microbes* which attack the exterior of the eye, we came to the conclusion, like our colleagues, that physical agents are the most efficacious. For instance in the cases of corneal ulcers, we bring the large surgical thermo-cautery, heated red, near the infiltrated spot, without touching it, two or three times a day. A few drops of adrenalin enhances the action of the thermo-cautery and helps the absorption of hypopyon. But when the patient comes too late, a conjunctival flap which should entirely cover the ulcer saves what still remains of the cornea, and prevents panophthalmitis. During the present campaign, I had good results with this proceeding in cases of very painful herpetical ulcers. In conjunctivitis blennorrhagica, the Finsen rays have given me surprising results, and I obtained the same good results in all cases with purulent and muco-purulent secretion. Besides I had satisfactory results by applying the Finsen rays to the wounded of the war and the victims of aeroplanes.

But the results which impressed me most were obtained by my assistant, Miss Leonica, with the high frequency current on optic atrophy and in cases of glaucoma with optic atrophy. The visual field increases rapidly and we could see in the fundus the blood vessels becoming more congested after a seance of ten minutes.

*In concussion blindness* (very frequent in this war), blepharospasmus and ocular paralysis, a strong galvanic current up to fifty milliamperes gave instantaneous results and we could immediately send these patients back to the front.

# IRRIGATION OF THE VITREOUS CHAMBER IN A CASE OF SUPPURATIVE PANOPHTHALMITIS.

BY

FRANK ALLPORT, M. D.

CHICAGO

The case to which I have reference is a very unique one and is doubtless, in a sense, historical. It simply goes to show what, in one of the most disastrous affections of the eye, radical treatment given at what happened to be an opportune time, accomplished in a certain case.

I am not aware of anyone who has practiced irrigation of the vitreous chamber before, and have found no reference to it in the ophthalmic literature. There are some surgeons who occasionally inject normal salt solution to fill out collapsed eyeballs, after loss of vitreous, and also in filling the anterior chamber after washing out cortical remnants following cataract operations. However, no mention that I have seen is made of the procedure in suppurative panophthalmitis.

The case to which I refer is B. R., age 27, a laborer employed in a steel mill. A few days previous to the time I saw the patient he had been struck in the left eye with a piece of metal. The eye had been treated expectantly and when I first examined him there was a well developed case of panophthalmitis. He also had iritis and a large hypopyon in the anterior chamber. An X-ray plate made of the affected eye disclosed a spicule of steel about 10 mm. in length, which was lodged in the vitreous chamber. The point of entrance was through the sclera. Immediate enucleation was advised, but to this procedure the patient and his friends would not consent. The next best thing was then attempted; namely, a magnet operation for the removal of the steel. This was accomplished through a scleral incision and a giant magnet. The piece of steel was removed and at the same time considerable pus exuded from the wound. I now advised the patient again to allow me to remove the eyeball, but he refused.

At this time the idea of irrigating the vitreous chamber with a normal salt solution to lessen and dilute the pus in that cavity, occurred to me, although I had no idea of a successful result, so with a large anterior chamber irrigating syringe I irrigated the vitreous chamber, thoroughly washing it and removing an appreciable amount of pus. I then made an iridectomy in a downward direction, and washed out the pus in the anterior chamber with the syringe. I then washed out the vitreous chamber again, so thoroughly indeed that the salt solution came out through the iridectomy space and through the corneal wound.

This operation which I have described was made about three months ago (it is now the middle of October). At the present time the inflammation has about disappeared from the eye and the tension which was for several weeks quite reduced, is actually increasing. The lens of the eye is cataractous and there is, of course, an exudate covering the entire capsule of the lens. With a condensed light the patient has light perception. In the other eye there are no signs of sympathetic ophthalmia.

As far as my knowledge extends, this is the first case of irrigation of the vitreous chamber that has ever been reported in a case of suppurative panophthalmitis and it simply goes to show an instance where this affection did not prove entirely disastrous.

I will say that I do not consider this, by any means, an absolutely safe eye, or one that may not cause further trouble, but the fact remains that this case of suppurative panophthalmitis has at least partially recovered under the treatment I have just described. The patient will not now, or would not before, countenance enucleation.

The operation was made at St. Luke's Hospital, and was witnessed by Dr. J. R. Smith, Dr. M. B. Wilson, our eye superintendent, Miss Crompton, and several others.

I do not *recommend* the operation. It simply demonstrates that the interior of the eye *can* be quite thoroughly cleansed, even in a case of suppurative panophthalmitis.

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## AN ABORTED CASE OF ADULT GONORRHEAL OPHTHALMIA.

BY

WALTER D. STEVENSON, M. D.

First Lieut. M. O. R. C.

The case reported was seen and treated in the service of Major Casey Wood, Department of the Eye, Section of Surgery of the Head, Base Hospital, Camp Sherman, Ohio.

H. B., private, aged 21 years, was admitted to the hospital on October 23rd for treatment of catarrhal jaundice. He was also suffering from gonnorheal urethritis of two weeks standing.

October 28, 1917, the patient complained of intense burning of both eyes and lids. The ward surgeon, Lieutenant C. G. Glass, was called, and on examination found a well marked conjunctival congestion. Realizing that the trouble was probably due to a gonococcus infection, he promptly made a smear from the secretion and sent it to the hospital laboratory, where the chief of that service, Captain Proescher, and the members of his staff, readily discovered the bacillus of Neisser. The ophthalmic department was notified at once.

The lid skin of both eyes was found to be slightly discolored and swollen; the palpebral conjunctiva was somewhat congested and there was moderate congestion of the ocular conjunctiva. A slight watery discharge, with a little mucus, was present. Both eyes felt distinctly uncomfortable.

At 8 p. m. the patient's palpebral conjunctivae were painted with a ten per cent solution of silver nitrate. The eye was then flushed with normal saline solution.

During the night of the 28th and the day following, cold compresses were applied to the closed eyelids for alternate fifteen minutes. Then the intervals were increased to three hours, with half-hour applications. During the night of the 29th and the whole of the 30th cold applications were made every six hours. On the first of November all medication was discontinued, the case being practically well. On the 2nd the patient was discharged from our service, vision being 20/20 in each eye, and has so continued.

In addition to the almost constant application of cold moisture during the first 24 hours, 25 per cent argyrol solution was dropped into the eyes every six hours. Irrigations were not used at any time. The lashes were cut short and sterile vaseline smeared into their stumps to prevent agglutination of the lids from the moderate mucoid discharge.

The chief feature of this case is the confirmation of Credé's contention that nitrate of silver is a specific for the gonococcus infection, if it be used before 24 hours have elapsed and before the organisms invade the deep structures. It also demonstrates the efficiency of a well organized hospital staff, whereby the character of an infection is promptly recognized and treated by proper means. The case did not exhibit the usual bulbar and marked lid chemosis, nor purulent discharge, for the simple reason that it was recognized early and steps were taken to neutralize the poison. It may be objected that ten per cent was an unnecessarily strong solution of silver nitrate to employ, that five or even two per cent would have been enough, but in the presence of such a virulent agent as the gonococcus, it is, perhaps, well to give the patient the benefit of the doubt.

## A CASE OF LACERATION OF THE EYEBALL WITH AN EYELASH DRIVEN INTO THE LENS.

BY
JAMES R. SMITH, M. D.
CHICAGO.

The case to which I have reference is a very unique one, and insofar as my knowledge extends, a like instance has never been recorded.

F. L., a carpenter whom I first saw on October 3, 1917, had a lacerating wound of the cornea of the left eye. He had been struck in the eye with a splinter of wood. (He was sawing at the time). The foreign body had penetrated the lens, causing it to become cataractous. There was also a cut of the iris with an anterior synechia. Forty-eight hours after the accident occurred the lens began to undergo swelling, and the pupil failed to dilate with atropine, so an operation (iridectomy and cataract extraction) was performed. When the lens was removed there was an eyelash driven through its center. The hair could be moved to and fro in its tunnel-like opening. The eyelash had evidently been carried into the eye by the splinter of wood.

Dr. Frank Allport, who was present at the operation, said that the case was unique and that he had never read of a similar occurrence.

Dr. M. B. Wilson and Miss Crompton, superintendent of the eye and ear department of St. Luke's Hospital, were present at the operation.

From his experiences in the Italian theatre of the war, Giuseppe finds that 16 per cent of injuries of the eyes are from machine guns or shrapnel, 50 per cent from flying scraps of stone, 5 per cent from trachoma, and 25 per cent from asphyxiating gases. The toxic gases which induce much lacrimation are far less dangerous to the eyes than the usual asphyxiating gases. When the latter act on the eye long enough they deprive the cornea of sensibility and if the injury is severe, small foci of necrosis develop, there is severe pain in the brow, back of the neck and temples, and the eye slowly dies, the eyeball becoming completely atrophied.

# REPORTS OF SOCIETIES

## PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

March 15, 1917

WILLIAM T. SHOEMAKER, M. D., CHAIRMAN

### Symposium on Ophthalmia Neonatorum and Gonorrheal Conjunctivitis, Their Relation to the General Hospital.

Dr. George E. de Schweinitz said that with certain facts we are well acquainted, to-wit, that about 110,000 men, women and children in this country are within the strict definition blind. About one-fourth of this number need not have lost their sight. The causes of their misfortune are in large measure preventable. These 25,000 persons, by their blindness, deprive the country yearly of about $8,000,000 worth of productive labor. A very large proportion of these 25,000 persons who ought not to have lost their sight have been deprived of it because of ophthalmia neonatorum, which is responsible for 25 or 26 per cent of the blindness in eleemosynary institutions, schools for the blind, etc., and is the cause of approximately 8 per cent of the blindness in most of the regions of our country. The ophthalmia neonatorum which causes this blindness is in most instances due to the gonococcus, which is responsible for this disease in about 65 per cent of the cases. In general terms, measures devised and in operation for the elimination of this preventable cause of blindness are education, compulsory notification, punishment by law of offenders against properly constructed legal regulations, and compulsory prophylaxis. It is not necessary to discuss the value of these measures. Each has its value, but this is not enough. Inasmuch as all properly managed hospitals at the present time have as part of their equipment a social service, the difficulties of the home treatment of ophthalmia neonatorum have been lessened, and the follow-up system has been productive of admirable results. But even the social workers and the follow-up system are not always able to control home treatment, and the evidence is strong that the best results are secured in wards properly constructed and conducted for the management of this disease, the best example being the Gardinar Ward of the Massachusetts General Hospital. But many hospitals have no such wards. Until comparatively recently,[1] in the City of Philadelphia, the Philadelphia General Hospital and the private rooms of St. Joseph's Hospital were the only places where cases of ophthalmia neonatorum and adult gonorrheal ophthalmia were admitted. In other words, many hospitals had no accommodations for such cases, and have not got them now, and they won't admit them. Some hospitals, like the Preston Retreat, the Maternity Hospital of the University and of the Jefferson Medical College, take care of the babies who acquire the disease when born in their own wards, but they do not accept cases of this character from the outside. Dr. Holloway investigated forty-two hospitals in Pennsylvania. Only two returned an unqualified statement that ophthalmia neonatorum patients would be accepted. Very properly, he concludes that hospitals receiving state aid should be compelled by law to provide suitable accommodations for the victims of ophthalmia neonatorum. Furthermore, society, in the general sense of that term, which supports certain other hospitals not accepting state aid, should demand that they make similar provision. Committees which exist for the prevention of blindness should force this issue with all the influence they can command, not only because it represents a real work of humanity, not only because it relieves the city ward in which the child may exist from a distinct menace, not only because with very little expense and with absolutely no danger to other patients in the hospital, a room with a few beds could always be appropriated for these cases and a nurse detailed when any of the patients were its residents, but, if you choose, from a commercial standpoint the matter should be urged, because it would mean a reduction of the blind from this cause, and therefore a lessening of the economic loss to the commonwealth in which these hospitals exist. Many computations have been made. In one state it has been ascertained that 100 of the young blind have lost their sight from ophthalmia neonatorum. These young persons will eventually cost the state $300,000 for education, but the economic loss to the commonwealth because of their lifelong dependence will be many times that sum. Three years ago in the state of Pennsylvania $123,000 was appropriated by the commonwealth to four institutions or organizations for the blind, and approximately $32,000 of this money was devoted to the welfare of those who were blind from ophthalmia neonatorum. As Dr. Holloway has pointed out in his admirable report, it costs the state of Pennsylvania approximately ten times as much to educate one blind child as it does to educate one seeing child. These figures should be stored up in the memories of those who make our laws.

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[1] At present several hospitals have made provision, for example the German Hospital, St. Mary's Hospital and the Children's Hospital.

Dr. A. D. Whiting, medical executive officer of the Germantown Hospital, said that gonorrheal ophthalmia and ophthalmia neonatorum are classed by the management of a general hospital as infectious, venereal diseases. Hence they come under the ban of the rule of most general hospitals which provides that no infectious or contagious disease shall be admitted; or under the ban of the rule which prohibits the admission of venereal diseases. These are just rules when applied to the majority of general hospitals and should be enforced, because these hospitals are not equipped to properly care for these cases without neglecting or endangering the patients generally considered suitable for admission to a general hospital. A general hospital is supposed to be equipped to properly study, treat, and care for patients afflicted with conditions which in a general ward would not endanger the comfort or well-being of other patients admitted to such wards. They are not equipped, in a majority of instances, to properly study, treat, and care for patients suffering from communicable diseases which require isolation with all that the term applies in the form of special, exclusive nursing; special, exclusive diet trays with the care of the tray utensils; special, exclusive disinfection and laundering. If not properly equipped, the hospital does an injustice not only to itself by admitting such cases, but an injustice to the other patients in the hospital and to the community in general, because it would be assuming obligations which it could not fulfill; it would result in removing from the other patients that protection against communicable diseases which is assumed when they enter a general hospital.

As a general proposition, the nursing staff of a general hospital should be equipped both as to numbers and attainments to care properly for each and every case admitted to the hospital. But the majority of hospitals have nursing staffs that are not prepared, especially in numbers, to care for cases that must be isolated, without either neglecting really suitable cases, or being so overworked that the general nursing deteriorates. And this is especially so when a case of gonorrheal ophthalmia is considered. According to some authorities the infection reaches its height in about two weeks. During that time there must be practically constant attention, both day and night. This means that at least two nurses must be taken from their regular duties and must devote themselves solely to the one case. One might imagine that the removal of two nurses from regular staff duty should not interfere with the routine work of the hospital. As a matter of fact, very few, if any, hospitals have a greater number on their nursing staff than is actually required to do the routine work. Again, it may be argued that the hospital would have to care for a case of gonorrheal ophthalmia which developed in the hospital. Very true. And the hospital would care for such a case to the best of its ability, hiring special nurses for the purpose, if necessary. But that does not signify that the hospital should seek trouble and expense by admitting a case, for the care and treatment of which it is not equipped.

Another drawback to the admission of these cases, in most general hospitals, is the lack of isolating wards or rooms. If these cases could be cared for in a general ward, there would be a greater leniency toward admitting them. The hospital must protect the other patients from infection, so far as possible and, therefore, the management must refuse admission until proper housing facilities can be afforded.

A very serious objection to the admission of gonorrheal ophthalmia to a general hospital, in the minds of the lay management, is the thought that it is a venereal disease. Possibly it will be argued that this stand of the management is due to prejudice or ignorance or both. Be that as it may, it is nevertheless a fact that a great many hospital managements hold the same views. Stokes states that in "1914 it was estimated that the city of London, with a population of 7,000,000 had 163 beds actually available for the care of sexual diseases. The Sydenham Royal Commission has just found the same condition throughout Great Britain. Of thirty general hospitals in New York City, a recent investigation showed that only ten receive recognized cases of syphilis in active stages. Nine receive adult cases of gonorrhea needing hospital attention, and three receive and treat active gonorrhea in little girls. Thirteen of thirty will not receive medical cases with known syphilis or gonorrhea." Until this prejudice, ignorance, or whatever you wish to call it, is overcome, lay managements will continue to exclude venereal diseases. It must be remembered, moreover, that to the lay mind, venereal diseases are loathsome and contaminating; many managers think it almost criminal to allow, much less command, young pupil nurses to come in contact with such loathsomeness even in a professional way.

The only general hospitals that should admit cases of gonorrheal ophthalmia are those that have a special ophthalmological department, sufficient and suitable isolating rooms, and a large enough nursing staff to allow of special nursing without interfering with the routine work of the department or of the hospital.

I believe that every general hospital pretending to maintain an eye service should be so equipped and that all cases of gonorrheal ophthalmia should be admitted to such a department.

Dr. A. A. Cairns, Chief Medical Inspector of the Bureau of Health of Philadelphia, called attention to the Act of Assembly No. 295, approved June 5, 1913, which provided for the prevention of blindness, by requiring the reporting of cases of ophthalmia neonatorum (inflammation of the eyes of infants) by physicians, midwives and others, and requiring the reporting of results of treatment of case of said disease, and fixing a penalty for violation thereof.

The reporting of ophthalmia neonatorum is compulsory in thirty-seven states.

He felt that there was no good reason why cases of ophthalmia neonatorum should not be treated in any hospital.

The Division of Child Hygiene, Bureau of Health, dispenses to all midwives ampoules containing one per cent (1%) solution of nitrate of silver.

Dr. Cairns stated that any case of ophthalmia neonatorum reported to the office of the Bureau of Health (which was always open) would be visited by a medical inspector who would explain the gravity of the disease to the parents and endeavor to have the case removed to a hospital.

Dr. J. M. Baldy, chairman of the Bureau of Medical Education and Licensure of Pennsylvania said that his interest in this matter was purely from an administrative standpoint.

Several years ago he was called from his office during the evening by the supervisor of midwives of the Philadelphia district to the house of a young Italian family where he found a young mother with a first baby on her knees which was suffering from the well-known picture of ophthalmia neonatorum. The only hospital in Philadelphia available into which to send this child and mother for treatment was the Philadelphia General Hospital. The district physician through whom application was to be made was out of town for the night and there was no certainty that he would be home even in the morning.

Such a condition in a city of the size of Philadelphia Dr. Baldy thought not only pitiable but outrageous. If hospitals were not organized to take care of suffering people, no matter what the disease might be, then he did not know what a hospital was for. The only exception to this should be cases which had been pronounced by the health authorities to be so contagious as to be unsafe for treatment in a general hospital.

The Bureau of Medical Education and Licensure during its inspections of the hospitals of the state found it the almost universal rule to exclude all of this type of cases. This was frequently done by specific by-laws. The spirit of excluding this type of case from the general hospitals had grown from several causes. First from the lack of proper information given by the doctors to boards of managers, and second from a religious prejudice of the boards of managers. The old conception was that if a man sinned he should stand the consequence of his sin: but the trouble with this theory was that it did not take into consideration either humanitarianism, the efficiency of the community or the rights of the innocent. No more dangerous class of diseases exists in any community than this group of venereal diseases and no hospital manager can with a clear conscience turn such cases loose on the community. The hospital which commits this offense clearly fails to fulfill its obligations to the community and to those who contribute charity funds for the sake of the sick and distressed.

So far as purulent ophthalmia is concerned, the state builds institutions for housing these unfortunates after they have become blind and spends large sums in educating them and caring for them and yet this same state is asked to contribute millions of dollars a year to the aid of hospitals which turn loose this class of patients on the community to become blind and to become dependent on the state.

The Bureau of Medical Education and Licensure had weighed this matter very carefully and Dr. Baldy was glad to hear that the opinion of those present who were experts in the treatment of the eye was thoroughly in accord with his opinion as to the responsibility of hospitals in this matter. He said that this discussion had strengthened the Bureau in a conclusion to which it had already come and which it was about ready to announce, to wit, that no young medical man was properly prepared to practice his profession who was not properly educated in the treatment of venereal disease in all of its phases, including purulent ophthalmia and vaginitis; that it was unjust to the community to turn such young medical men out without this education, when the state required that each young man who went into practice shall spend a year in a hospital. It was fairly evident that unless the hospital furnish instruction in this class of diseases he could not acquire a sufficiently competent education to warrant his being sent into practice in a community. In consequence of this it would be found when the new hospital bulletin was issued that the Bureau would insist that the hospital which was unwilling hereafter to furnish material for such experience to the intern would not be placed on the approved list of hospitals into which interns might go to complete their education.

Dr. Love, on behalf of St. Mary's Hospital, and representing the ophthalmic department of that institution, said he wished to state that a ward has been assigned to cases of ophthalmia neonatorum and of gonorrheal ophthalmia. This ward was isolated, contained six beds, and was in charge of two nurses.

He believed that the number of these cases could be greatly reduced, and the eyesight of many children be saved, if the law relating to this subject were more rigidly enforced, and if ampoules containing silver nitrate were widely and freely distributed by the Bureau of Health.

Dr. H. Maxwell Langdon stated that the Children's Hospital would take cases of gonorrheal ophthalmia in children either with or without vaginitis up to the limit of its capacity, which was a ward of four beds to be used for this purpose. These facilities might be somewhat curtailed for the immediate future from the fact that in the new hospital the quarters for the nursing staff were limited and it might be that owing to a shortage of nurses not more than two cases could be treated at one time.

Dr. J. B. Turner endorsed the sentiment of the meeting, that hospitals receiving state aid should admit cases of ophthalmia neonatorum. Also that children's homes and foundling asylums should report their cases and be compelled to have trained nurses for the care of the same, under an oculist's supervision. If the mother was given an antiseptic vaginal injection under strict antiseptic precautions before birth of the child there would be fewer cases of ophthalmia neonatorum to report.

J. Milton Griscom, M. D.,
Clerk.

## COLORADO OPHTHALMOLOGICAL SOCIETY.

### MEETING OF OCTOBER 13, 1917.

### J. R. ROBINSON, M. D., PRESIDING.

### Subacute Glaucoma.

Dr. E. R. Neeper presented for examination: Mrs. W., age 41. She was first examined September 12, 1917. At that time V. O. D. was 20/30-1 letter and + 8 letters. V. O. S., fingers at one foot. By the tonometer, O. D. 52, and O. S. 65.

In the history, Mrs. W. stated that O. S. had always seemed the weaker eye, but that it was worse during the past seven years and especially worse with each cold. A complete rhinoscopic examination of the nose, however, was negative.

The fields of vision showed the usual constriction on the nasal side. V. O. S. has failed gradually and a cloud has passed in an eclipse-like manner over the whole field. The eyes have been free from pain. In January, 1917, she weighed 200 pounds and had a blood pressure of 270. Now she weighs 168 and has a blood pressure of 132. This reduction of weight and blood pressure is the result of an obesity treatment she has taken with massage, diet, and medication, prior to consulting Dr. Neeper for her glaucoma.

An X-ray examination of the teeth showed one ulcerated tooth in the superior maxilla, which was extracted. Following extraction, a probe passed readily from the root canal into the maxillary sinus on that side.

In February, 1917, she was sent by her family physician to an optician, who gave her a + 1.25 sph. before each eye and assured her that the cloud before her eyes would disappear. Her physician also confirmed this statement when she asked him about this.

V. O. D., the day of the meeting, October 13th, was 15/20-1 letter. V. O. S., fingers at 17 feet by turning the head and using the peripheral portion of the retina. She received locally pilocarpin nitrate for the elevated tension.

*DISCUSSION.*

Dr. Melville Black said these cases of glaucoma simplex are very liable to terminate in acute inflammatory glaucoma. These patients are nervous and shouldn't be frightened suddenly, as any sudden shock is liable to precipitate an acute attack. These cases must be watched. He would prescribe eserine, 1 gr. to the oz., and insist on having the patient keep the pupil as small as a pin head. The solution must be fresh and he therefore prescribes a small amount, so that it must be refilled often.

In discussing this case he mentioned a woman who left San Francisco for her old home in Pennsylvania recently. One eye had been blind for twelve years. The second eye became involved with glaucoma just before she reached Leadville, Colorado. She left the train at Denver, as her second eye was almost blind and extremely painful. He examined her, putting in eserine every five minutes, and used massage every half hour. The tension the second day was 80; the vision was nil. The second day he used massage every three hours and also eserine. As the eye was in a desperate condition, he advised a trephing operation and this was duly performed at St. Luke's hospital. By this time vision has improved so that she can count fingers and walk about alone. Patients with glaucoma simplex are over a volcano, and their condition is liable to become acute and serious at any time.

Dr. William H. Crisp said that he had known that eserine changed its color upon standing, but didn't know that it lost its therapeutic effect.

Dr. E. E. McKeown stated that the solution is stable if we use the salicylate instead of the sulphate.

Dr. D. A. Strickler is in favor of the citrate treatment, but Dr. Melville Black said the chemosis of the conjunctiva is very objectionable after any subconjunctival injection, especially if we have to do a trephining operation.

Dr. H. M. Thompson, of Pueblo, spoke of the importance of focal infection in all these cases. We neglect the general treatment too much. This woman's eye was hyperopic and, therefore, predisposed to glaucoma. We should purge, sweat, and reduce the blood pressure of all glaucoma patients.

He referred to a sheep raiser whom he saw some months ago and presented before this society in Denver last spring.

The eye was badly congested, but, following removal of the tonsils, the eye was very much better. One eye had previously been lost and the other was poor when Dr. Thompson saw this patient. While he was under treatment with eserine, some medical friend substituted atropin drops, as he assured the patient that he knew what Dr. Thompson was prescribing for him. The atropin was used for about a week. Eserine was used often to bring his vision back to what it had been prior to the use of atropin. Fortunately, the patient did not rapidly lose sight during the week he had used atropin. Dr. Thompson believes that in this case a tonsil operation had removed the primary focus of infection, and that the improvement in his glaucoma was due to this.

Dr. F. R. Spencer referred to Dr. Clark W. Hawley's recent article in one of the ophthalmic journals concerning the treatment of the gastro-intestinal tract in cases of glaucoma.

Dr. Wm. H. Crisp stated that he is suspicious of the diagnosis of any case which will tolerate atropin, and he believes these are likely cases of irido-cyclitis with increased tension.

Dr. E. E. McKeown emphasized hot applications followed by eserine as recommended by Dr. L. Webster Fox.

Dr. C. E. Walker also spoke of glaucoma secondary to an irido-cyclitis, especially in cases which tolerated atropin. He was always suspicious of the diagnosis of irido-cyclitis in such cases.

Dr. Thompson insisted that there couldn't be any doubt about the diagnosis in this case as the patient has been too thoroughly studied and examined by too many ophthalmologists for this.

Dr. J. J. Pattee spoke of the constitutional diathesis as a predisposing factor and Dr. W. F. Matson referred to the numerous reports and articles upon glaucoma by Treacher Collins.

Dr. E. R. Neeper asked if he should operate this case.

Dr. Edward Jackson asked if she has had acute exacerbations, to which Dr. Neeper replied in the negative. Dr. Jackson said if the case is progressive, she sees rings, and vision is failing, he would operate. He would operate upon the left or worse eye first in order to obtain a clue as to how the eyes will react to a glaucoma operation before subjecting the right or better eye to the same surgical interference.

Dr. D. A. Strickler spoke of an article by Chisholm, of Baltimore, upon the Japanese pocket stove for applying heat to the eye. This burns a carbon, is light and comfortable for the patient to wear, and is one of the most satisfactory means for applying heat that he knows of.

Dr. F. R. Spencer stated that he had also used this in many ear, nose and throat cases, but had had very limited experience with it in eye cases.

Dr. E. R. Neeper, in closing the discussion, said he had used only pilocarpin nitrate in this case of glaucoma. He likes it better than eserine, although he may at times use eserine. He thinks most cases show focal infection and we should search for this.

Dr. Melville Black spoke of Dr. Posey's article, ten years ago, in which he stated that pilocarpin is milder than eserine.

### Interstitial Keratitis.

Dr. J. A. Patterson presented a boy, age 11, first examined last August. At that time he complained that things looked hazy before the right eye, but he was only conscious of this dimness of vision, as he had neither pain nor photophobia. It was impossible to get a good view of the fundus with the ophthalmoscope, but the left nerve was pale and the fundus showed the usual pepper and salt appearance of congenital lues. The right cornea showed a decided interstitial keratitis with marked pericorneal injection. There was no history of injury.

V. O. D. was improved very slightly with a — 3.00 sph. so that he could see close objects a little better; V. O. S., with a — 3.00 sph. = — 1.75 cyl. ax. 110 = 6/9.

Further history of the case. Patient is the first and only child. The mother seems to be a refined woman in perfect health and, owing to the father's immorality, she separated from him years ago. He has since died. Mother has married again, but has not had any children by her second husband.

Recently he was given 1/1000 mg. of T. R. without any reaction. A few days afterwards Von Pirquet's skin test was decidedly positive. October 6th he was given 1/500 mg. of T. R. subcutaneously with some local reaction. The Wassermann test is positive. Previous to the Wassermann test he was given three doses of 606, consisting of 4/10 gram each time intravenously. The eye became worse after each dose. Ung. Hydrarg. one drachm inunction every other night. This has been continued to date.

*DISCUSSION.*

Dr. Melville Black said he saw this case in consultation. during the meeting of the Colorado State Medical Society, in Colorado Springs, late in September, and advised luetic treatment, as he felt the case was very positively luetic. He stated that it might be advisable to use the tuberculin treatment if Dr. Patterson so desires. The mouth shows typical congenital lues as manifested by the tongue and teeth.

Dr. F. E. Wallace asked how we are to know the importance of lues in a case which has both tuberculosis and syphilis as prominent etiological factors.

Dr. F. R. Spencer spoke of Dr. Jackson's recent article, read before the Colorado State Medical Society, in which Dr. Jackson quoted extensively from Brown and Irons' work on etiology of inflammation of the iris, ciliary body, etc. Dr. Spencer emphasized that we must not be misled by lues necessarily, but we must consider these cases on their merit. Many of his own cases have been treated both for syphilis and tuberculosis with good results. In one case the ethmoid had to be operated, too, because of an old ethmoiditis with involvement of the optic nerve on that side.

### Diabetic Lenticular Opacities.

Dr. J. R. Robinson presented Mrs. D., with lenticular opacities in each lens, and diabetes. She has worn plus cylinders with very little, if any, improvement. She accepts a +.50 sph. in distant vision.

### Posterior Synechia and Broad Arcus Senilis.

Dr. Robinson also presented Mrs. S., who has large, broad posterior synechia in O. S. with poor vision. It is almost impossible to see the fundus because of the haziness of the media. There are slight lenticular and vitreous opacities present. Her age is 56. The wide arcus senilis is congenital, as she states that she had had this all her life, and her daughter, who is 32, shows the same defect. Dr. Robinson asked for suggestions concerning treatment, subconjunctival injections, etc.

*DISCUSSION.*

Dr. H. M. Thompson, of Pueblo, uses subconjunctival injections of dionin to break up posterior synechia. A marked reaction is necessary.

Dr. Melville Black suggested atropin with dionin. The teeth should be X-rayed, he believes, and one should look for roots even though she states that all her teeth have been extracted, and even if one cannot find any evidence of roots projecting above the surfaces of the gums. If these things fail, he prefers an iridectomy, but uses this as a last resort.

Dr. Jackson, in speaking of Dr. Robinson's first case, said the refraction may change. The iritis may cause myopia, and the diabetes may also influence refraction decidedly because of the effect it has upon the lens.

In Dr. Robinson's second case the posterior synechia were hardly sufficient to produce secondary glaucoma, as there is too free communication between the anterior and posterior chambers. He would let the eye alone, as the adhesions may become atrophic, especially if the pupil reacts reasonably well to light These posteria synechia stretch considerably during a period of years, at least that has been the experience in other cases he has had an opportunity to watch for a long time. As this woman is older, one will have less opportunity to expect this as much as in younger patients. He says that the corneal condition is very interesting and the children should be examined. The case should be worked up completely and reported in full. Change in refraction in these cases is due to change in the lens and not to change in the cornea.

Dr. W. H. Crisp said he wouldn't worry about posterior synechia, as he does not believe these constitute a serious complication in any event.

Dr. O. Orendorff, of Canon City, spoke of using the keratometer in measuring the astigmatism in these cases. We have in the keratometer a means of watching the corneal curvature and astigmatism, and, if the astigmatism changes from time to time without any change in the reading of the keratometer, we know the change has taken place in the lens. In one patient, a diagnosis of impending cataract was made before there were any ophthalmoscopic changes, and after a few months this was easily verified.

Dr. F. R. Spencer spoke of using three tests in all cases of refraction, as suggested by Dr. Edward Jackson in an article read before the Philadelphia Polyclinic several years ago. We should use the keratometer, the subjective test at the trial case, and skiascopy in every case of refraction, under a cycloplegic. In this way we get one clue by one test and another clue by another, but our work is more likely to be thorough and systematic if we depend upon all three tests.

### Hemorrhage of Vitreous.

Dr. J. R. Robinson presented a third case: A man from the old soldiers' home. He is a printer by occupation, and luetic. Complains of sudden loss of vision in the only eye he has and upon examination a decided hemorrhage of the vitreous was discovered. He has accentuated loss of vision from the floaters rising in the vitreous as he moves his head or turns the eye about. He can read coarse print now. Has taken K. I. First attack occurred in 1914. He is about 50 years old.

*DISCUSSION.*

Dr. F. R. Spencer said the angiosclerosis of the retinal vessels is the cause of the vitreous hemorrhage. The lues has only been a predisposing factor in hastening this, as lues is so liable to produce early arteriosclerosis.

Dr. Melville Black said he would consider retinal tuberculosis.

Dr. Edward Jackson said he saw a red mass below in the lower part of the vitreous chamber.

### Divergent Squint.

Dr. E. R. Neeper reported a case in which the patient now has divergent squint, although he is hyperopic. The vision of one eye is almost nil. He formerly had convergent squint. He spoke of this case as quite unusual, as most patients who are hyperopic, if they have squint, have convergent strabismus and not divergent, and it does not change its type.

FRANK R. SPENCER, Secretary,
Physicians Building,
Boulder, Colorado.

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## PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA

April 19, 1917.

WILLIAM T. SHOEMAKER, M. D., CHAIRMAN.

### Extensive Discoloration of the Posterior Capsule of the Lens Following a Severe Penetrating Wound of the Eye, Resulting in Excellent Vision.

Dr. Frederick Krauss presented a patient, male, aged thirty-five years, who was struck by a red-hot piece of steel about two inches long and the thickness of a narrow lead-pencil, which penetrated the tissues just beyond the outer canthus, passing through the ciliary region, then apparently between the posterior capsule of the lens and the limiting membrane of the vitreous, reaching to the opposite side of the lens. The patient immediately pulled out the hot foreign body, burning his fingers. He made a perfect recovery, so that in four weeks he had 5/9 normal vision. He showed a large scar beyond the outer canthus, two triangular discolorations over the ciliary body and a brownish, rust-colored, translucent discoloration running across the entire lower fifth of the lens, and a second discoloration in the outer one-third of the lens. The rest of the lens and vitreous were clear, and the eye quiet. The *x*-ray was negative.

### Retained Hyaloid Sheath.

Dr. Wm. Zentmayer presented a case of retained hyaloid sheath in the right eye of a boy, aged ten years. Attached to the upper-inner quadrant of the posterior capsule of the lens was a white membrane which could be traced for some distance into the vitreous when it was, for a short space lost, but again became visible as a broad greenish-white mass attached to the papilla. The latter appeared to have an incomplete coloboma. The eye was blind.

### Congenital Stellate Cataract.

Dr. Wm. Zentmayer presented an unusual form of congenital cataract. The case was that of a child with zonular cataracts presenting stellate opacities at each pole of the clouded zone.

Dr. Zentmayer also presented two instances of symmetrical, subcapsular punctate, annular opacities just beneath the terior capsule of the lens.

### Snow-Ball Opacities of the Vitreous.

Dr. Holloway exhibited a female, aged seventy-four years, who recently came under observation at the University Hospital on the service of Dr. de Schweinitz. In each eye the whole vitreous appeared to be studded with rather freely movable, small, snow-white globular opacities. There were incipient lens changes. The fundus of each eye was not seen clearly but sufficiently well to state that there were no well-defined gross changes in the choroid or retina. The patient is now being studied from a general medical standpoint.

Dr. Holloway briefly alluded to some of the literature on the subject. In conclusion he stated that he had not made a complete resumé of all cases showing cholesterin, but had alluded to these cases because cholesterin crystals, more closely than any other opacities, bore resemblance to the type of opacity under discussion. He felt that they differed in appearance just as much as a cotton ball differs from gold and silver tinsel.

He referred to the investigations of Burdon-Cooper, who repeatedly found tyrosin in association with cataract, and especially marked in those cases associated with albuminuria and diabetes.

Dr. Zentmayer said that from the casual examination that he had made of Dr. Holloway's case the condition did not seem to him to differ greatly from synchysis scintillans. The bodies were in the anterior part of the vitreous and were enmeshed in a framework of connective tissue.

Dr. S. Lewis Ziegler had seen several such cases during the past thirty years. He referred to one case of occlusion of the pupil in which after a V-shaped iridotomy the anterior chamber filled with cholesterin crystals. He thought that some chemical change was responsible for these vitreous opacities with associated systemic disturbance.

### Report of a Case of Acute Double Optic Neuritis With Complete Blindness in the Right Eye.

Dr. C. E. G. Shannon presented the case of a girl, aged nine years, who had consulted a physician a few weeks previous for several frontal headaches and was informed that the sight in the right eye was completely lost.

*Examination.* Right eye blind. Left eye vision equals 20/30. Pupils were unequal—O. D. 4½ mm.—O. S. 4 mm. Reactions normal. Malingering was disproved. There was no impairment in the rotation of eyeball.

*Ophthalmoscopic Examination.* Right eye revealed swelling of the papilla of about 3 D. associated with a grayish striated opacity extending some distance into the surrounding retina. Margins decidedly indistinct. Arteries normal. Veins engorged and tortuous.

Left eye showed swelling of nerve and striation of the retina slightly less marked than O. D.

For future study and observation, she was admitted to the Jefferson Hospital, November 15, 1916.

*Personal History Negative.* The von Pirquet test was negative. Wassermann also negative. Knee-jerks increased; no clonus; no Babinski; gait normal; station normal; no changes in sensation; finger-to-nose and finger-to-finger movements apparently normal.

Dr. Price stated that it suggested very strongly a possibility of brain tumor, the absence of definite localizing signs and the mental hebetude, inclining him to think of a frontal growth.

Dr. Deardoff reported chronically inflamed tonsils and adenoids, but considered these affections were not the cause of the symptoms.

*Urinalysis.* Negative.

*The X-ray* demonstrated marked evidence of intracranial pressure by reason of the exaggerated convolution depressions on the inner table of the skull, although no definite cause for the increased pressure can be determined.

Dr. Hansell saw the patient in consultation and advised lumbar puncture.

Dr. Tyson, the intern in charge, performed the operation and reported that the cerebropsinal fluid was under considerable pressure because of the force with which it escaped from the needle.

*Microscopic examination* of fluid negative.

On the morning following the puncture vision returned to the right eye, and the child could count fingers at five feet. There was a slight reduction of the swelling of the papilla, and the margins were more definitely outlined, vision gradually improved and within two weeks had increased to 20/100. Associated with the improvement there was a still further recision of the papillary swelling to about 1½ D. from 3 D. Vision of 20/100 with moderate elevation of the disk is still maintained.

*Diagnosis.* In view of the negative family and personal history of the laboratory findings, and the improvement of vision following lumbar puncture, the diagnosis in this case is uncertain.

The report of the *x*-ray demonstrating exaggerated convolution markings on the inner wall of the skull, and the evolution of the spinal fluid at the time of lumbar puncture, and finally, by reason of the absence of other signs and symptoms of cranial lesions a tentative diagnosis of chronic internal hydrocephalus may be assumed.

Dr. Holloway assumed from Dr. Shannon's remarks that he regarded the digital impressions as being dependent upon intracranial pressure. He stated that authorities were not in accord concerning the formation of these peculiar markings. He thought that in the case under discussion, if the pressure was intense enough to produce these markings on the inner table of the skull, it might be fair to assume that the delicate bony structure of the posterior wall of the orbit might be affected, and the possibility of some pathological changes about the optic foramen ought to be considered.

**Massive Spontaneous Hemorrhage into the Vitreous.**

Dr. Leighton F. Appleman reported three cases of massive spontaneous hemorrhage into the vitreous observed in Dr. Holloway's clinic in the Polyclinic Hospital. The first case, a woman, aged forty years, had an initial hemorrhage which cleared up under dionin and atropin to such an extent that the details of the fundus could be dimly seen. This was followed one month later by another massive vitreous hemorrhage in the same eye which failed to clear up under increasing doses of potassium iodide or other measures. The Wassermann reaction was negative. She suffered from extensive pyorrhea which was believed to be a causative factor by septic absorption.

The second case, a man, aged twenty-one years, showed a massive vitreous hemorrhage which had come on suddenly, without previous injury, and with complete loss of sight. The Wassermann reaction was strongly positive. He was given several injections of arsenobenzol, and potassium iodide, over a period of three months without favorably influencing his eye condition, although his general health was greatly improved.

The third case, a man, aged twenty-seven years, also lost the sight of the left eye suddenly as a result of massive hemorrhage into the vitreous. The right eye showed extensive connective-tissue formation in the vitreous, as of old hemorrhage, although the patient was unaware of any trouble in this eye, as his vision was normal. This case was considered specific in nature, as he gave a history of chancre nine years previously, and other findings were negative. The serum Wassermann was negative, however, and a spinal Wassermann was not obtained, as the patient left the hospital before the examinations were completed.

The various causes of vitreous hemorrhage were reviewed, as well as the different modes of treatment which have been resorted to in the hope of absorbing these large extravasations.

Dr. Krauss recalled two cases of spontaneous hemorrhages in the vitreous. The first case had copious hemorrhages which would be completely absorbed, only to recur again after an interval of about six weeks. They apparently came from the choroid, directly above the macula, as shreds of the retina could be seen extending into the vitreous at this point. The patient recovered his sight eventually without any specific treatment, but finally developed miliary tuberculosis.

The second case, a woman in which were frequent hemorrhages, all sorts of local and internal medication proved unavailing, each hemorrhage being more difficult to absorb than the previous one. The remedies recommended for this disease demonstrate their uselessness by their numerical variety.

Dr. Zentmayer recently saw a case of recurrent hemorrhages into the vitreous in a strong boy, age eighteen years. A thorough physical examination failed to reveal any lesion. The Wassermann was negative. The von Pirquet was strongly positive. The blood count, hemoglobin and coagulation time were all normal. The left eye had but L. P. The vitreous was filled with blood. In the right eye vision equalled 6/6. There was but little blood in the vitreous but there was a zone of hemorrhages in the retina surrounding the ciliary body. Under mercurial inunctions, thyroid extract, potassium iodide and sweating, the vision in the left eye was now 6/9 but that of right eye continued to fail. new vessels and tissue forming in the vitreous.

Dr. Holloway thought that these cases were always difficult to handle in dispensary practice, and that often it was difficult, for one reason or another, to carry out proper investigations concerning their origin. He felt that the majority of these cases were due to either tuberculosis, syphilis or anemia, although other conditions might produce a similar clinical picture. He stated recently that Dr. Lamb had informed him that he had obtained excellent results from the use of fibrolysin during the active or subsiding stages. Personally he had never used the drug.

Dr. S. Lewis Ziegler referred to several cases of recurrent hemorrhage in the vitreous, some of which were due to constipation and one to vicarious menstruation. He thought many were due to intestinal intoxication. He found thyroid extract in small doses and positive galvanism the most effective form of treatment.

### Serum Therapy as Applied to Pneumococcic Infections of the Eye.

Dr Louis Lehrfeld, by invitation, referred to the announcement by the Rockefeller Institute that the pneumococcus is no longer a single organism but a family of cocci composed of four different species. This had paved the way for extensive research along the lines of serum therapy for each type of microörganism. In the experience of those who have used antipneumococcus serum in the treatment of pneumonia, only the serum of the Type I variety has given conclusive and encouraging results.

If serum therapy can be of value in the treatment of an acute pulmonary disease such as lobar pneumonia, there is every reason to believe that the same treatment could be applied with advantage in the acute inflammatory diseases of the eye caused by the pneumonia germs. The same types which are found in the sputum should also be found in the inflammatory discharges from the eye, caused by the pneumococcus.

The number of organisms procured from the eye in these infections are ofttimes insufficient to obtain proper growth on culture media. The time consumed in securing the proper growth and the time lost by inoculation of the mouse and by awaiting its death for the determination of the type, made it impracticable to await the ultimate diagnosis of type infection in eye conditions, because serious injury might result to the eye if immediate treatment was not instituted. In order to overcome this difficulty it appeared logical to add equal quantities of the sera of all types and to use this mixed treatment, as it were, in order to reach the prevalent type.

The Pneumonia Commission has therefore prepared ampoules of serum of Types I and II in equal quantities for use in eye cases.

The use of antipneumococcus serum in the eye is based solely on the properties of the various sera to agglutinate the organisms of their respective types. The eye merely acts as the test-tube and the serum instilled agglutinates and renders inactive the organisms present. It is precisely the same reaction which takes place in the Widal test for typhoid and the agglutination test for cholera. The determination of the type of pneumococcus is therefore not immediately essential and the "mixed treatment" can be continued until the type has been diagnosed by the proper laboratory tests when the specific serum can be administered.

Local instillation in the cul-de-sacs of the infected eye can only be relied upon in the superficial infections of the globe, since contact of the serum with the organisms in the deeper layers of the cornea and in the chambers of the eye could not take place readily. In such fulminating inflammations of the eye where the deeper structures are involved, it is advisable to use the serum intravenously as in the case of lobar pneumonia. The frequency of the injections will depend entirely upon the nature and seriousness of the infection and the procedure will follow along the same course as in pulmonary infections.

The advantages to be derived from local serum therapy in the severe pneumococcic infections over the present methods of treatment are the immediate destruction of the invading organisms. Corneal ulcers are most frequently caused by the pneumococcus and opacities are a common sequel of these infections, leaving the vision more or less permanently impaired. It is for the prevention of these cases of partial blindness that serum therapy is especially advocated and for the possible prevention of total blindness resulting from complete infection of the globe.

### Ocular Palsies in Infantile Paralysis. Report of Two Cases.

After briefly reviewing the literature, Dr. A. C. Sautter reported two cases of ocular palsy complicating infantile paralysis, both cases being patients in the Philadelphia Hospital for Contagious Diseases in the fall of 1916.

Case 1.—Bilateral external ophthalmoplegia in a two-year-old male infant. The palsy was first noticed about five weeks after the onset of illness. Before this the patient was in a semi-stuporous state, at times restless and slightly delirious, fever ranging around 100°. There was slight weakness of arms and lower extremities but no distinct paralysis of any muscle group. Ocular examination revealed paralysis of all external eye muscles with a moderate ptosis in the left eye which slightly deviated upward. There were no pupillary abnormalities and no changes in the eye-grounds.

Examination six months later disclosed only slight lateral ocular motility; physical and mental condition apparently good. In view of the exceptionally long duration of the palsy, the prognosis as to complete functional restitution seemed doubtful.

Case 2.—Paralysis of the conjugate movements of the eyes in a four-year-old colored boy. One brother had infantile paralysis at the same time, one sister had succumbed to the affection one week prior to admission of case under consideration. Illness began with vomiting, fever and prostration followed by signs of a right facial paralysis. Five days after admission to the hospital paralysis of the conjugate movements of the eyes to the right was noted associated with right facial palsy and right leg weakness. There were no pupillary or fundus abnormalities. Convergence was somewhat impaired.

Examination six months later disclosed only slight impairment of dextroversion and no other palsies.

The writer reviewed 669 case histories of infantile paralysis at the Philadelphia Hospital for Contagious Diseases and found nineteen, or about three per cent, which showed disturbance of the extra-ocular muscles, including thirteen cases of unilateral sixth nerve paralysis, four of which were complicated with seventh nerve paralysis. Bilateral sixth nerve involvement occurred in three cases, external ophthalmoplegia and paralysis of the conjugate ocular movements each in one case. Ptosis uncomplicated with other ocular lesions in one case, combined with other ocular lesions in two cases. Nystagmus occurred several times. A few histories containing references only to pupillary anomalies and no other eye symptoms were purposely excluded from the list of eye complications. In seven of the nineteen cases the cranial nerves were apparently the only nerves affected.

Paralysis of the facial nerve occurred in seventy-eight patients, eighteen of whom died.

In the few cases examined ophthalmoscopically no fundus changes were noted.

In accord with the findings of previous investigators it was found that the seventh nerve was most frequently involved, then the sixth and least often the oculomotor nerve.

In reply to Dr. Hansell's question as to what percentage of cases in infantile paralysis showed palsy of the ocular muscles and whether these differed from palsies complicating other cerebro-spinal conditions, Dr. Sautter stated the percentage obtained in the case histories examined was about three per cent (excluding facial palsies) and that in his experience limited to a few cases, the palsies clinically showed nothng typical.

### A Case of Suspected Tumor of the Pituitary Body.

Dr. Howard F. Hansel reported the case of a boy, aged seventeen years, who had well-marked temporal hemianopsia of the left eye only and slightly concentric contraction of the fields of both eyes. The pupil of the left eye was dilated under all conditions of light 1 mm. larger than the right. The hemianopsic pupillary reaction could not be positively proved yet the response to a bright, suddenly exposed, minute light was less prompt and less excursive by the nasal half than by the temporal half of the iris.

The interior of each eye was normal. There was not the slightest variation from the normal in the color or outline of either optic nerve.

The X-ray report: "Interference by pressure on one or more of the large blood channels, probably that in closest relation to the base of the brain in the region of the sella turcica or longitudinal sinus about the level of the coronal sutures."

Neurological report: "He has no disturbance of gait, station, reflexes, motion or sensation and presents no evidence whatever of hysteria."

The test by the otologist showed no loss of connection between the internal ear and the higher brain centers.

The symptoms presented by our patient are too few to permit of a positive diagnosis, yet they are of significance in pointing to tumor, cyst or hypertrophy of the ciliary body. The nature of the lesion is conjectural. The picture of normal eyegrounds persisting through four months is not inconsistent with the conception of a small tumor, possibly a cyst, which has almost completely destroyed the function of the anterior left part of the chiasm and has invaded, by pressure or inflammation, the right optic nerve. J. Milton Griscom, M. D., Clerk.

## PROFESSOR GEORGE STANCULEANU.

### A TRIBUTE.

Among the numerous tragedies of the world war, some unknown except to the victims, others forgotten after a shudder, none making more than a temporary impression because swallowed up and overshadowed by the constantly recurring horrors, is that of Dr. Stanculeanu, formerly of Bucharest, Roumania.

While the Roumanian army was retreating in Moldavia and the German army was advancing toward Bucharest from the south and west, Dr. Stanculeanu and his wife, with a large number of the civil population hurriedly left Bucharest, taking nothing with them but the clothes they wore and a little food. From the entrance of Roumania into the war until the evacuation of Bucharest, Professor Stanculeanu was chief ophthalmic surgeon to the Roumanian army, with headquarters in Bucharest. The large hospital of the University of Roumania at Bucharest was crowded with soldier patients, imposing constant and arduous duties upon the surgeon. Dr. Stanculeanu had five hundred eye patients immediately under his care. He and his colleagues, compelled to retire to Jassy under most distressing conditions, left their homes, their responsibilities, their everything, as so many thousand other refugees have done before and since. In the resulting disorganization and confusion at Jassy there seemed to be no place or regular duty for him, so Dr. Stanculeanu was commissioned by his government to go to the United States to solicit aid for the Roumanian Red Cross, Roumanian army and the Roumanian homeless and impoverished people.

He and his wife, with thousands of other refugees, found their way to Moscow, where, for lack of transportation and other reasons, they were obliged to remain for two months.

On December 29, 1916, he wrote to me (the letter was received March 30) that he was about to start for America, via Vladivostok and Yokohama. From Yokohama he wrote of his safe arrival and speedy departure. He reached San Francisco the end of April, was well received by the profession and delivered several addresses. While in that city he received a cable from the Roumanian authorities commanding him to return immediately to his own country for remobilization. He presented at one of the banks a draft for one thousand dollars and was refused payment. Perplexed and startled by the cable and the action of the bank he was undecided as to his duty, but he made up his mind if he could collect his money that he would return by the New York-Liverpool route.

From San Francisco he went to Chicago to consult with Mr. Vopicka, who had been United States minister to Roumania before the war. This gentleman received him kindly, telegraphed to the San Francisco bank that Dr. Stanculeanu was properly credited and that he would vouch for his loyalty.

From Chicago he came to Philadelphia. When I saw him he was a physical and mental wreck. Worn out by the long journey across the continent, obsessed with the belief that every stranger was a spy, his plight was pitiable. He believed that a Russian spy had reported that he, Dr. Stanculeanu, had made seditious speeches while in Moscow and if he went back he would be shot. Two days' rest in the Jefferson Hospital resulted in no improvement. Our constant assurances that he was safe and free from espionage made no impression whatever. Under advice his wife consulted with the Roumanian Commission in New York, who advised that Dr. Stanculeanu should be removed to a sanitarium. His mental disorder increased. He refused to speak even to his wife and for five days refused to eat. He contracted pneumonia and died August 15, aged 45 years.

Professor Stanculeanu is best known to us in connection with his operation for the extraction of the lens in the capsule; but in all lines of his work he was indefatigable in his endeavors to advance ophthalmology. Only those who have visited him and personally followed him when in the performance of his daily duties can fully appreciate his enthusiasm and application.

During the teaching semester he went to the hospital daily by 7:30 or 8 o'clock in the morning and commenced to operate soon afterwards. After the operations were completed, and they were many, he inspected all the hospital cases, demonstrated and discussed their interesting points to his associates and visitors, and saw the important cases in the dispensary. After two or three hours midday rest he returned to receive visitors, inspect the laboratories, and in the evening after dinner frequently returned to his study in the hospital to pursue his literary work.

This bare outline gives the reader an idea of the enormous amount of work of which Professor Stanculeanu was capable. As an indication of his devotion to his profession and to the advancement of the interests of the eye department of the University, and of his generosity, it may be stated that he divided his entire salary received as professor of ophthalmology among his assistants, each receiving a sum proportionate to his position and length of service.

To the American visitors he was courteous and attentive, taking pleasure in giving them every available opportunity for observation and operation. To the writer he was exceptionally generous with respect to the work in the hospital and in providing entertainment outside hospital hours. His thoughtfulness will ever be gratefully remembered. H. F. HANSELL.

# NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Charles P. Small, 25 E. Washington, St., Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Enrique B. Demaria has been appointed professor of ophthalmology in Buenos Ayres to succeed Lagleyzea.

Twenty former employees of the F. A. Hardy Company, in Chicago, are now doing government work, and six have gone from the Julius King Optical Company.

Dr. Walter B. Lancaster, associate in ophthalmology at Harvard, has resigned and is now in charge of the ophthalmological department in the base hospital at Camp Devens, Ayer, Mass.

The death of Dr. Menacho, of Barcelona, was erroneously announced in the August number of this journal. We are pleased to receive the information that Dr. Menacho is alive and in good health.

The Johns Hopkins Hospital and the South Baltimore Eye, Ear and Throat Hospital have offered to take some of the men stationed at Fort McHenry and give them practical training. The Hopkins has taken six men, while the South Baltimore Eye, Ear and Throat Hospital has asked for four.

At the annual meeting of the Minnesota Academy of Ophthalmology and Otolaryngology, held in St. Paul, the following officers were elected: President, Dr. Frank E. Burch, St. Paul; vice-presidents, Drs. James S. Reynolds, Minneapolis, and Conrad W. Wilkowske, Chippewa Falls, Wis.; secretary-treasurer, Dr. John H. Morse, Minneapolis.

Capt. Frederich G. Ritchie is chief of the ophthalmological department in the new base hospital in Camp Upton, Long Island. The hospital is a million-dollar establishment, consisting of seventy beds and will accommodate 1,000 patients. The entire medical corps will consist of 300 enlisted men and seventy-five women nurses.

An institution for the education and training of blind soldiers is to be established at Halifax, N. S. The organization work will be under the supervision of Sir Frederick Fraser, Halifax, who has been so successful in building up the Halifax School for the Blind.

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It is suggested that ex-interns of the Illinois Charitable Eye and Ear Infirmary, Chicago, who have been gathering about once a year for clinics and discussions, join with graduate interns of other recognized hospitals for the care of the diseases of the eye, ear, nose and throat, that a larger organization may be formed and greater good accrue to the membership.

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At the twenty-sixth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, held in Pittsburgh, October 29 and 30, the following officers were elected: President, Major Allen Greenwood, M. R. C., U. S. Army, Boston; vice-presidents, Drs. Virginius Dabney, Washington, D. C.; Frank R. Spencer, Boulder, Colo., and W. Likely Simpson, Memphis, Tenn.; secretary, Dr. Lee Masten Francis, Buffalo, and treasurer, Dr. Secord H. Large, Cleveland.

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## NOTICE.

Owing to the fact that the OPHTHALMIC RECORD has been merged into the (New) *American Journal of Ophthalmology*, it will be impossible soon after the end of the year 1917 to obtain copies of the RECORD.

There are at this time only three full sets of the OPHTHALMIC RECORD on the market. The Publisher will sell them for the sum of $160.00 a set, provided the purchase is made before March, 1918.

Volume 2 is out of print; and there is only one full volume of Volume 1 on the market outside the three full sets.

Full volumes of each year, except the second, can be had singly at.

$10.00 for Nos. 1, 3, 4, 5;
7.00 for Nos. 6 to 21 inclusive;
4.50 for Nos. 22 to 26 inclusive,

if the purchase is made before March, 1918. Single copies of the first five years' issue can be had for 75 cents each; 50 cents each for all other years as long as they last.

For some years back there has existed an organization of ex-internes of the Illinois Charitable Eye and Ear Infirmary. These men gather once a year for clinics and discussions. At the last two meetings it was suggested that the organization be enlarged by joining with the graduate internes of all other recognized eye, ear, nose and throat hospitals.

These ex-internes are requested to send their names and addresses to Dr. R. H. Woods, La Salle. Ill., for further particulars about the new organization.

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The Washington Eye, Ear, Nose and Throat Hospital will move into its new building at 2517 Pennsylvania avenue on October 17, 1917. This new four-story building is fire-proof, modern in every detail, and occupies a frontage of 56 feet on Pennsylvania avenue.

On the first floor are the clinic, pathological rooms and quarters for help; on the second floor, the waiting-room, library, office, refraction and dark rooms, interns' room, X-ray and microscopical rooms. The third floor comprises private rooms, with and without baths, semi-private rooms, utility rooms, diet kitchens, and chart rooms. On the fourth floor are the operating rooms, sterilizing rooms, surgeons' lavatory, sun parlor, and nurses' quarters.

The successful completion of this hospital is largely due to the untiring efforts and generous contributions of Dr. Oscar Wilkinson.

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Resolution adopted unanimously by the Clinical Congress of Surgeons of North America at Chicago, October 25, 1917:

Whereas; The experiences of the nation convince us of the necessity for universal military training, to furnish qualified men for defense, to strengthen manhood and mental poise, and to make for a more efficient citizenship, and

Whereas; We believe it will democratize youth and furnish discipline, while developing physical force and endurance, and will produce better fathers and workers for the ranks of peace;

Therefore, Be it Resolved; That the Clinical Congress of Surgeons, at its eighth annual session, urges upon Congress, at its coming session, the passage of a measure along the general line of the Chamberlain bill for universal military training, and that the cantonments now used by the National Army be utilized, if possible, for such work.

Bahn of New Orleans believes that moving pictures under favorable conditions do not cause as much fatigue as the same period of concentrated reading. Under unfavorable conditions, moving pictures cause increased fatigue which, if continued, produces symptoms that are unpleasant and may be harmful. Most persons who complain that moving pictures cause ocular discomfort have some ocular defect. A review of the literature to date records no permanent harm to the eyes from moving pictures.

## OBITUARY.

Eli Leinbach Klopp, M. D., Philadelphia, September 29. Age, 61.

Allen De Vilbiss, M. D., Toledo, Ohio; October 1. Age, 75.

Obadiah Layton Huffman, M. D., Galion, Ohio; October 7. Age, 56.

Archibald G. Thompson, M. D., Philadelphia, October 22. Age, 48.

Lieut. George Walter H. Conrad, Philadelphia, October 30. Age, 29.

Harris Gray Sherman, M. D., Cleveland, Ohio; October 30. Age, 61.

E. Delens, agrégé professor of ophthalmology at the University of Paris, until retirement, is dead at the age of 78.

Dr. Guiata, director of the University Eye Clinic in Florence, and for many years editor of *Annali di Ottalmologia,* is dead.

Theodor Leber, formerly professor of ophthalmology in the University of Heidelberg, died on April 7, age 77. Leber's first important work was published in 1865; it dealt with the blood vessels of the human eye, the material for which he had gathered in the laboratory of Karl Ludwig in Vienna. For some years he was assistant to R. Liebreich in Paris. He worked with Albrecht v. Graefe for nearly four years. He was an inspiring teacher and a most acute clinical observer. A list of his scientific contributions, which number upwards of one hundred, may be found in *Klinische Monatsblätter für Augenheilkunde,* Bd. LVIII (1917). The October number of *The British Journal of Ophthalmology* publishes a brief account of some of the more interesting events in the life of this well known ophthalmologist.

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